Good Practice in Violin Pedagogy:

Psychological Aspects Related to the Acquisition of Motor Skills.

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Thesis submitted in partial completion of the requirements for the degree of Doctor of Philosophy

Birmingham Conservatoire

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Sept 2014

Abstract

In this thesis I set out to examine current practices in violin pedagogy and to relate these to current theory in Motor Learning (hereafter, ML). This will involve particularly focusing on how teachers consider the acquisition of motor skills in terms of teaching strategies, memory and student's motivation. The thesis sets out to answer the following research questions:

- To what extent are motor-learning and associated theories applied in major violin pedagogies such as Suzuki or Rolland, albeit without the teacher's awareness or acknowledgement?
- Do teachers in fact apply the teaching pedagogies they claim?
- Can their success be attributed to the use of Motor Learning principles?

In Part one of the thesis various violin pedagogies and concepts associated with ML theory are laid out. A primary source for ML research is found in the sports psychology literature but my research exposes a widespread lack of awareness of ML principles in the actual practice of violin teaching in Spain, UK and the USA. Whilst many teachers of violin pedagogy follow formal teaching programmes and methods, for example Suzuki and Rolland, it is questionable to what extent these methods actually implement aspects of ML theory. I conclude that each, in its way, is drawing on certain ML principles even when the authors of the methods are evidently unaware of the link.

Part two of the thesis presents the findings of an extended programme of empirical study in which aspects of Motor Learning and their influence in teachers' practice is explored. I analyse the practices of those teachers who have participated in a case study that I have developed as part of my doctoral thesis, exploring differences between their methods, pedagogies and approaches. I then describe some aspects of ML and their influence on teachers' practice. Following this, data collected in the case study through lesson observation, interviews and the use of questionnaires is provided, outlining comparisons between the teaching habits of the teachers. I determine this study confirms the presence in violin teachers' methods of procedures considered as efficient under ML principles and brings to light differences in teachers' habits depending on their level of expertise. This is particularly related to the frequency and length of the instructions, control of pupils' feedback and the variety of strategies used to generate learning. To conclude I compare pedagogies

and teachers' procedures, emphasising those aspects related to successful teaching and ML. These outcomes open new lines for further research, which might help teachers to improve their effectiveness.

For Raquel

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Video Examples

All video examples referred to within the text can be found in the attached DVD and can be reproduced using Quick Time Player (10.0). Further information about the way these recordings were produced can be found in chapter four. The video examples included in the DVD are numbered after the chapters to which they correspond, as follows:

- 2.1: Oral practice.
- 2.2: Modelled practice.
- 2.3: Imagined practice.
- 2.4: Guided practice.
- 11.1: Balanced combination of physical, guided, modelled and oral practice.

Table

In order to better visualise the large amount of data obtained through lesson observation, a table showing these data has been included in the attached DVD as well as in the Appendices D1 to D5:

- Table 1. Observation data.

Graphics

Graphics visually showing the data can be found on the attached DVD in PDF format as well as in the Appendices E1 to E6:

- Graphic 1. Zweig teachers.
- Graphic 2. Suzuki teachers.

- Graphic 3. Motor Learning teachers.
- Graphic 4. Rolland teachers.
- Graphic 5. Traditional teachers.
- Graphic 6. Comparison of pedagogies.

Graphics one to five show on/off-task behaviour, the average length (in seconds) of the tasks, the number of tasks that correspond to a one-hour lesson and the number of different types of practice that have been observed in each lesson (from those mentioned in chapter two). Graphics comparing the groups of teachers that have participated in the experimental studies can be found in the file 'Graphic 6'. These graphics show several parameters, namely: On/off-task behaviour, average length (in seconds) of the tasks, average length (in seconds) of the questions asked at the lessons and the average length (in seconds) of the time expended per hour in each type of practice.

Acknowledgements

After completing a work the scale of a doctoral thesis I cannot but think of all those who made it possible. I am afraid of being unable to enumerate them for fear of forgetting a few names. Nevertheless, I would like to mention those who have had a major role supporting me during the past several years, hoping those not specifically mentioned in the next paragraphs will be able to forgive me and are very much in my heart and thoughts.

I am very thankful to all the teachers and students who have participated in the experimental studies, allowing me to invade their privacy by filming lessons and generously sharing with me their thoughts and experience by filling in the questionnaires. Spending so many hours with such a bunch of wonderful musicians has been a privilege and an invaluable enrichment. I would specially like to thank Mimi Zweig and Kato Havas for their interviews.

I appreciate the contribution of all the staff of the BCU, from the librarians to the personnel of the research department, in particular Liz Reeve for her professionalism. I am in deep debt with my supervisors: professors Janet Hoskins and Peter Johnson, who have believed in me more than I have believed in myself. Working with them has been a privilege and an unforgettable experience.

Thank you also to Dr. Peter McBurney and Sean Gittins for checking the whole text. Their suggestions and comments have been most useful.

If someone deserves to be mentioned in this page it is my family. Their love and unconditional support under all circumstances is the greatest treasure I have in my life. Last but not least is my wife Raquel, the authentic cornerstone of everything I have built during the last years, and who knows what sharing her husband with a research project of this magnitude is involved.

Part 1

Motor Learning and violin pedagogy

Chapter one. Introduction: Connecting science and violin pedagogy

When I started my career as a violin teacher over twenty years ago, I assumed that in teaching my own students it would be sufficient to reproduce the patterns and routines of my own teachers as well as the syllabus of the institutions where I studied. However, after my first year as a professional teacher I realised the limitations to this approach and that my passion for music and teaching was not enough to be a successful teacher. My method seemed to be more effective with students whose emotional and intellectual characteristics where similar to my own but not so successful with other pupils. This observation led me to look for further information in order to increase my pedagogical skills, turning my career into a permanent search of effective teaching.

I began by studying how to teach technical skills and the repertoire, as well as strategies for both private and group lessons. Gradually my research moved towards the psychological aspect of teaching until, influenced by Dr María Castillo, a professor of Motor Learning at Universidad de La Coruña (Spain), I began to establish connections between this field and my own teaching practice. Further training in the Suzuki method, Rolland and Zweig's pedagogies as well as Havas' 'New Approach' helped me to create a more eclectic method of violin teaching.

As a result of these explorations I have met excellent teachers who stand out for their artistry, creativity and the strong abilities of their students. Further, they all work in different institutions, live in different countries and claim to use different methods. The fact that these outstanding teachers come from such a variety of backgrounds was the origin of my interest in the pedagogical characteristics that they might share and that make them so successful. It was thus my interest both in successful teaching and ML that led me to the project of researching such successful violin pedagogy.

My central concern for this thesis was to establish what constitutes good violin teaching. By 'good' I mean a teaching method that realises the teacher's intended goals, for example, motivation of the student, technical improvement and developing musicality. Since, as Kate Grieshaber (1986) has argued, teachers tend to rely on 'trial and error' methods, it follows that the extensive literature on the biomechanical and psychological aspects of violin playing and pedagogy has been generally ignored. A recurring theme in this literature is that of ML, which refers in part to the ways in which the human body learns and controls movement. This does not mean that teachers are altogether ignorant of these aspects; for it may be that they are

applying them intuitively. In this project I set out to examine the extent to which successful violin teachers are in fact applying ML and associated principles, whether it be intuitively or not.

A first task is to examine the ML literature. This has mostly focused on sports or on how one learns movements in everyday life. I shall however show that it has potential relevance to violin teaching and playing and that, in some respects, widely practised violin pedagogies do in fact apply particular ML principles. A first research question can thus be formulated: to what extent are motor-learning and associated theories applied in major violin pedagogies such as Suzuki or Rolland, albeit without the teacher's awareness or acknowledgement? In Part one of the thesis, principally literature-based, I seek to answer this question. Following an examination of ML as it might relate to violin playing and pedagogy, I examine four key violin pedagogies, namely Suzuki, Rolland, Zweig and Havas. Suzuki argued that repetition is essential to master motor skills as well as emphasising the importance of enhancing students' memory both by asking them to learn the repertoire by rote and performing from memory at public performances. On the other hand, Rolland based his pedagogy on a scientific analysis of the acquisition of motor skills. Mimi Zweig uses in her pedagogy principles from both Suzuki and Rolland, among others. In contrast however, Havas draws attention to the interrelationship between mind and body in his teaching practice. Two more questions thus arise: do teachers in fact apply the teaching pedagogies they claim? How successful are they? These issues are addressed in Part two, which includes empirical studies where teachers and students' routines are analysed through questionnaires and observational techniques. Initially, the empirical studies were designed to represent those pedagogies included in Part one, alongside a group of teachers who claim no allegiance to a published pedagogy and a further group trained by myself and formally introduced to certain basic aspects of ML. Problems and details related to the methodology applied in the empirical studies are explained in Part two. In this thesis I ask whether the violin teacher is implicitly drawing on, what I shall generically identify as, ML and whether they may benefit from awareness of the ways in which ML principles can be applied in the practice of violin teaching.

Music teaching and effectiveness

It is often claimed that musicians today experience increasing pressure and are required to spend more time practising their instruments than ever in the past. Competition is highly fierce thus making high velocity and accuracy basic requirements for any professional performer (Lehmann, 2006). This level of

specialization also has an influence on teaching techniques as well as teachers and means psychologists and pedagogues are also involved in the development of new strategies that allow performers to achieve their potential at any stage of the learning process.

The literature on effective music teaching extends from strictly scientific papers on the physiology of performance to practice-based texts on effective teaching methods. Psychological and pedagogical research is mainly focused on beginners, amateurs and community music programmes, whilst biomechanical, medical and technical research tends to focus on advanced players. Some of these approaches focus on classroom and time management, analysis of the repertoire as well as behaviour control. However effectiveness in music teaching is usually due to the development of motor skills. Current research into effective teaching is reviewed in the next paragraphs, as too is research into the approach adopted in this thesis.

Violin teachers have a wide variety of methods, pedagogies and approaches at their disposal that they can use depending on their needs and the characteristics of their teaching context. Most of these tools are intended to assist teachers in different ways. For example, the Suzuki method is mainly addressed to teachers who work with young students and who can command their parents' support. Kato Havas' New Approach in contrast offers experienced performers the possibility of improving their relationship with the instrument, optimising the way they use their body and minimising the risks of injury as well as stage fright. Paul Rolland on the other hand analyses the principles of those movements associated with violin playing with the aim of offering teachers a set of tools that they can pass onto their students that help learn advance techniques free of unnecessary tension from the first stages of the teaching process. Mimi Zweig took ideas from both Suzuki and Rolland, in addition to other pedagogues such as Kodaly and Galamian, creating a holistic approach to string teaching. I shall be showing that a high percentage of teachers claim to use the so-called traditional method despite the fact that the term 'traditional' can often obscure the absence of a well-defined method. Besides all these formal methods, teachers also have at their disposal scholarly research into music psychology, physiology and biomechanics and this is what is going to be addressed in the following paragraphs.

Literature on music psychology can offer information about the principles behind the music learning-teaching process. However, this information is not always accessible and understandable for the general music teacher, not least due to the use of technical terminology and a lack of focus on the pragmatics of teaching. In

spite of the efforts of some experts, such as Hallam (2006) and Lehmann et al. (2007), to make psychology more understandable to music teachers, most are apparently unaware of the latest findings in the field. Psychology considers effectiveness in music teaching from different points of view. Creech and Hallam (2010) relate teachers' outcomes to the quality of their interpersonal relationships. Kai-Wen and Durrant (2007) however suggest that 'it is helpful for teachers to focus on pupils' learning processes rather than only on their learning outcomes'. Lehmann et al. (2007) relate successful teaching to the type of relationship established between teachers and students, as well as how information is transmitted as well as teachers' strategies and behaviours.

Research on effective teaching also includes analysis of other parameters such as distribution of lesson time, teachers' procedures to present information, goals and expectations. Yarbrough and Price (1989) videotaped experienced instrumental and choral music teachers, as well as university students with different levels of expertise, analysing time units of teaching and student performance. They suggest that 'it is of paramount importance to develop techniques for teaching prospective teachers to present musical information, allow students response time and appropriately reinforce the acquisition of the information'. Goolsby (1996) videotaped sixty instrumental rehearsals conducted by teachers with diverse levels of expertise, observing differences in teachers' talking, non-verbal behaviours, modelling time, and length of on and off task behaviours, among other variables. A study of the procedures of three renowned artist-teachers (Duke et al. 2006), shows striking similarities in three categories identified by the researchers: goals and expectations, effective change and conveying information. Given that those teachers observed taught different instruments (oboe, violin and piano), the authors concluded that these similarities exemplify the best possible ways that students can be taught. These studies include research on instrumental teachers (including string teachers); conductors of ensembles, orchestras, bands and choirs; comparisons between expert teachers and beginners; and diverse criteria to define effectiveness. However, no examples have been found of teachers who teach the same instrument but apply diverse methods and pedagogies. Sidnell (1986) suggests that making teachers familiar with the above-mentioned research might increase their effectiveness. However, music learning involves not only the assimilation of musical concepts and particular knowledge about a certain instrument but also the the acquisition of motor skills by which performers master techniques and use musical instruments as tools to realise their artistic intentions. Palmer and Meyer (2000) describe music performance as a 'highly complex skill in many dimensions, including its conceptual structure

(such as harmony and rhythm) and its motor requirements (such as hand and finger movements)'. The acquisition of these motor skills is studied by ML, a branch of psychology that has practical applicability to subjects that involve movements, such as physiotherapy, sports, dance and music. Such skills acquisition in musicians is also addressed by medical and biomechanical research. Since musicians are a group of professionals who constantly work on repetitive movements in order to develop motor skills, observing their performance may offer clues to treat certain illnesses and injuries associated with these repetitive movements, such as dystonia (Watson, 2006). Other studies analyse specific movements in musicians, offering clues on how the violinist's right arm works biomechanically (Konczak et al., 2009). Further studies focus on how capture-motion and vibrotactile feedback can be applied to violin teaching (Linden et al., 2011; Visentin et al., 2008) whilst others analyse bowing parameters in violinists and viola players (Schoonderwaldt, 2009; Schoonderwaldt and Demoucron, 2009; Schoonderwaldt, 2010; Shan and Vicenting, 2003).

This thesis focuses on violin teachers whose procedures come from different pedagogies and who also differ in their background, teaching context and level of expertise. This variety of teachers and pedagogies sets out to answer the following questions:

- Is good practice associated with any particular pedagogy or method in violin teaching?
- Are there any similarities among successful teachers, independently of the method that they use?

The next two chapters in Part one explore both the fields of ML and violin pedagogy. Chapter two gives a view of the evolution of ML theories during the 20th Century as well as includes definitions of key words and theoretical concepts. References to those aspects of ML analysed in the experimental studies have also been included, namely: Practice, Memory and Motivation. The chapter on violin pedagogy describes some of the most influential pedagogies in the 20th Century highlighting any reference to those aspects of ML analysed in the second chapter.

Chapter two. Motor Learning concepts and theories

Music learning involves not only the assimilation of musical concepts and particular knowledge about a certain instrument but also requires the acquisition of motor skills by which performers master techniques and use musical instruments as tools to realise their artistic intentions. Palmer and Meyer (2000) describe music performance as a 'highly complex skill in many dimensions, including its conceptual structure (such as harmony and rhythm) and its motor requirements (such as hand and finger movements)'. The acquisition of these motor skills is studied by ML, a branch of psychology that has practical applicability to subjects that involve movements, such as physiotherapy, sports, dance and music.

Traditionally, music teaching has been based on teachers' personal experiences and often characterised by a lack of planning. Sidnell (1986) emphasises a particular lack of scientific background and methodology in music educators teaching: 'Without knowing very much about Motor Learning, music educators oscillate in their support of closed, open, or schema viewpoints. Frankly, I would characterize the music educators' theoretical position as eclectic ignorantism on the issue.' He points out that music teachers often base their teaching on the experiences on what they have received from their own teachers, ignoring any scientific knowledge that has been developed by psychologists and pedagogues. Finally, Sidnell suggests that it would be desirable to establish a link between both fields (music teaching and research) so that teachers can benefit from current research. Traditionally, teachers have shown themselves reluctant to treat their profession as a science, on the grounds that it could restrict their artistic creativity. Singer tries to reconcile both points of view arguing that 'Teaching should be an art and a science, that is, it should be intuitive and personal, reflecting at the same time what it is known about research and theory' (Singer, 1986). However, not all researchers support these ideas. Altenmuller and Gruhn (2002), referring to brain activation studies in musicians, call this use of science into question, arguing that 'science … deals with meaningful theories, explanatory models, and empirical observations with no immediate link to educational values'.

Contents of this chapter include a review of some of the most relevant ML theories developed in the early 20th century, an analysis of the phases that characterise the learning of new motor skills, the establishment of relationships between science and music education as well as an analysis of those aspects of ML considered in the empirical studies of this thesis, namely, practice, memory and motivation.

Definitions, models and theories

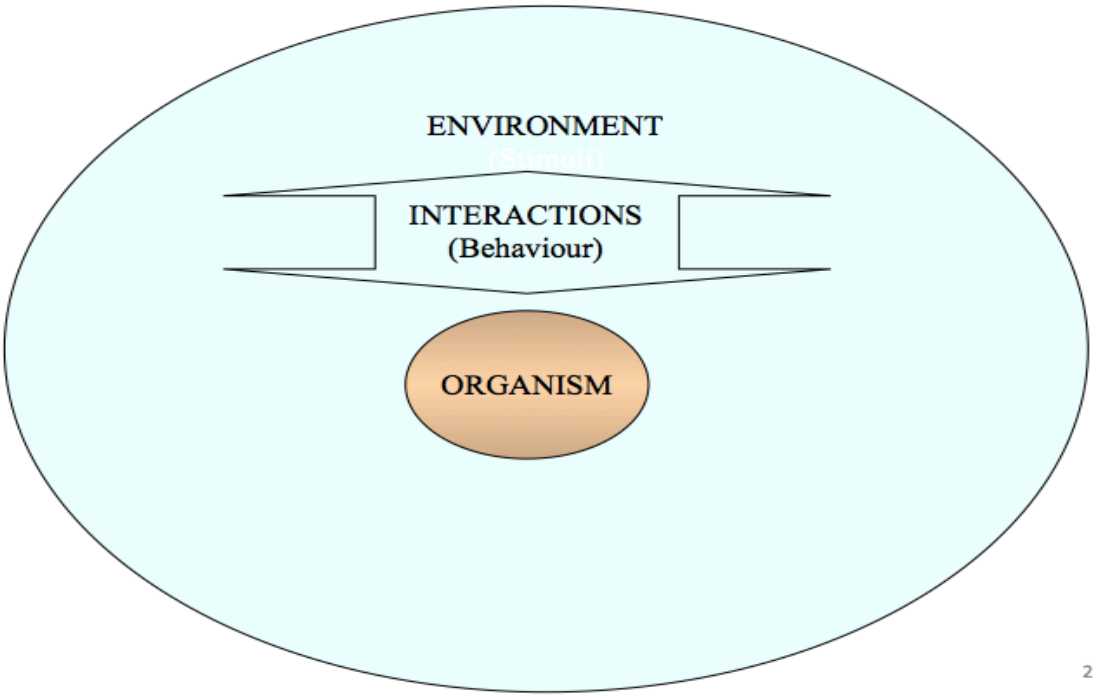
It is important to define some concepts from the fields of Psychology and Pedagogy that are being used in music research. Coh, Jovanovic-Golubovic and Bratic (2004) refers to what they call the official definition of learning established by UNESCO/ISCED in 1993 and which reads as follows: 'Learning is any permanent change in behaviour, acquaintance, knowledge, comprehension, viewpoints, skills or abilities that cannot be ascribed to physical growth or development of inherited behavioural patterns'. Lawther (1968) specifies that these changes are provoked by experience and that they are relatively permanent. He argues that even if changes must remain for a long time to be considered learning, they would disappear if they were not rehearsed on a regular basis.

When learning mainly involves body movements it is called ML (Viejo, 2004). Mental aspects are also underlined in recent research that claims that ML is 'closely connected with mental abilities, foreknowledge, the cognitive and conative characteristics of an individual as well as his familiarity with the theoretical bases of movement technique' (Coh et al., 2009). Repetition is recurrently included in definitions of ML, like the following one that also makes reference to long-term memory: 'Motor Learning is a process of storing information in long-term memory through the exercise or repetition of motor tasks' (Keel and Summers, 1976). The authors consulted in this project confirm the essential role that repetition has when learning motor skills. However, repetition is not the only tool that performers can use and other strategies that can reinforce learning when applied together with repetition will be explored in the next sections of this chapter. Schmidt and Lee emphasize more the importance of the internal processes associated with practice, as being responsible for learning; they define ML as a 'set of internal processes associated with practice or experience leading to relatively permanent changes in the capability for movement' (Schmidt and Lee, 1999). Adams includes in his definition of ML a reference to motor programmes: 'Motor Learning is a process of acquiring, completing and using motor information, knowledge, experience, and motor programmes' (Adams, 1976). Previously to Adam's theory, Keele (1968) defined a motor programme as a 'group of muscular requirements that are organised before a motor sequence starts and that let the group of all sequences to be performed without the influence of external feedback'[1]. This excludes feedback from

1 Originally in Spanish: 'Grupo de solicitaciones musculares que son organizadas antes de que una secuencia motriz comience y que permite al conjunto de las secuencias ser ejecutadas fuera de la influencia de un feedback periférico'. (Keele, 1968, in Viejo, 2004; 28).

participating in motor programmes. These programmes are also an important base for Schmidt's model, the schema theory, the impact of which has been reflected in an average of over twenty-nine references each year in journal citations until 2001 (Sherwood and Lee, 2003). Schmidt defines a motor programme as 'a multitude of commands that travel from the Central Nervous System to the muscles, and which are defined previous to the movement' (Schmidt, 1991.). Corraze (1988) agrees with Keele and Schmidt that motor programmes are previous to the movement, and states that the more complex the movement, the more elaborated the neuronal organization is.

As defined by Edward Thorndike (1931), human behaviour is related to those interactions between individuals and their environment (Figure 2.1). Later, Hull (1943) reflected this definition in the following formula: B = f (O, E), where B is the behaviour, O is the organism and E the environment. All these studies of human movement apply a psychological perspective and fall under the field of motor behaviour:



2.1. Thorndike's concept of behaviour.

Finally, another term that is usually mentioned in the literature on ML is motor control. This refers to the set of basic processes that regulate motor behaviour and that complements and adjusts structures to changing circumstances (Coh et al. 2009). Motor control characteristics are not the same for every individual at any age. On the contrary, they change all the time. This is why it is so important for teachers to

know what they can expect from every student. Research that try to explain these changing circumstances related to the study of movement encompasses the entire field of motor development. Human development is 'the learning acquired in long temporal intervals and interacting with biologic changes... when it is focused on the study of movements it is called motor development'[2] (Oña et al. 1999).

Learning models

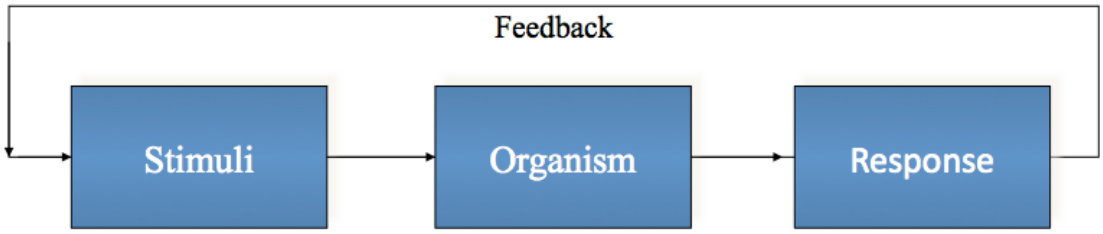
In order to develop a deeper understanding of the possibilities of ML in the context of music teaching, it is necessary to review the evolution of the different models and theories developed from the beginning of the 20th century. From behaviourism to dynamic systems theory, researchers have tried to explain not only the relationship between the individual and the environment, but also those processes that take place when we receive stimuli and elaborate appropriate responses that could give rise to movements as well as the acquisition of new motor skills. Learning models and theories can be divided into the following groups: behaviourist, cybernetic, information theories, gestalt, ecological and dynamic systems. Far from analysing all these models, in the forthcoming paragraphs I sketch the evolution of research in this field.

Thorndike emerged as a pioneer in systematic research on learning. He is included in the group of behaviourists or connectionists (next to other researchers such as Watson, Hull, Skinner and Tolman) who considered behaviour as interactions established between individuals and their environment. Thorndike's experiments, based on the trial and error system, looked for connections between stimuli and response, and were reflected in two of his most representative theories: the law of effect and the law of exercise. He thought that responses that generate pleasure are more likely to appear again, and that experience and repetition will facilitate the creation of automatic connections stimuli-responses (Thorndike, 1931). Although Thorndike believed that rewards were more helpful in order to increase children's motivation, he did not rule out the possibility of punishments, and its influence 'for the better by redirecting the attention of pupils from their existing ineffective S-R bonds to more suitable ones' (Child, 2007). The problem with Thorndike and other behaviourists is that they viewed the organism as a black box wherein organisation and internal processes are unknown, as well as the fact they

2 Originally in Spanish: 'Conjunto de aprendizajes en intervalos temporales amplios y en interacción con los cambios biólogicos... cuando se centra en el estudio del movimiento se denomina desarrollo motor'.

did not consider any learning without a stimuli. These analyses of the processes that take place when processing information led to new models.

Tolman, the author of the Behavioural Schema (1932), considered the organism as a system that processes information received from its surrounding environment. Responses, after their confrontation with the environment, are transformed into feedback that comes back to the organism, helping it to improve the upcoming responses (Figure 2.2):



2.2. Tolman's model.

Around 1960, Cognitive Psychology tended to reconcile neurologic and psychological theories, emphasising the importance of those processes that take place in the 'black box'. Donders (1969, first published in 1868) carried out the first experiments to clarify what is happening when organisms process information and his subtractive method was used for timing the processing stages. However, Oña (1999) exposes some restrictions for this system. He considered various aspects including separated stages; the serial conception of the processes; their independence, or absence of relationships between stages and processes; and his belief that it was not possible for the system to process more than one unit of information at a time as well as genetic limitations (since Donders believed that the system cannot be modified by learning processes). Oña also describes how there has been a disparity of opinion in the models that followed. While some authors have respected some of Donders' principles, others have differed from his ideas, preferring the integration and simultaneity of the previously described processes.

Stemberg and Taylor elaborated two models in 1969 and 1976 respectively, questioning Donders' method and offering two new points of view of the processes and the way they operate. On the one hand, Stemberg's additive factors model included new terms, namely: memory, attention, perception, search and decision-making. This model established that processes work simultaneously and that a

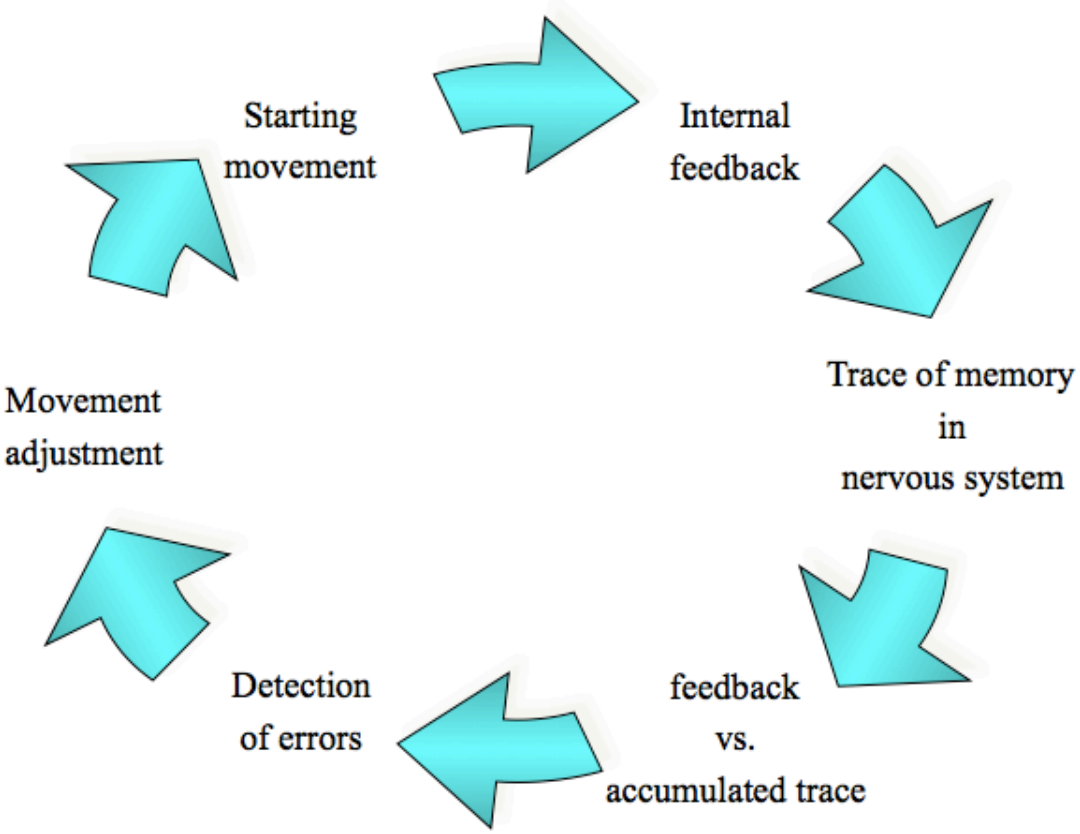
system can process more than one unit of information at a time. Processes analysed by these theories include encoding information received by the organism, searching for experiences previously stored in memory, decision-making mechanisms and programming responses.

Other scientists from the same period include Adams', who focused his research on sensorial feedback (Adams, 1971); Posner's, on attention and short-term memory (Posner & Konic, 1966); and Schmidt's, who considered human beings as a process information system in his Schema Theory. Because of their relevance, the next paragraphs will focus on Adams and Schmidt's information processing theories.

Information processing theories

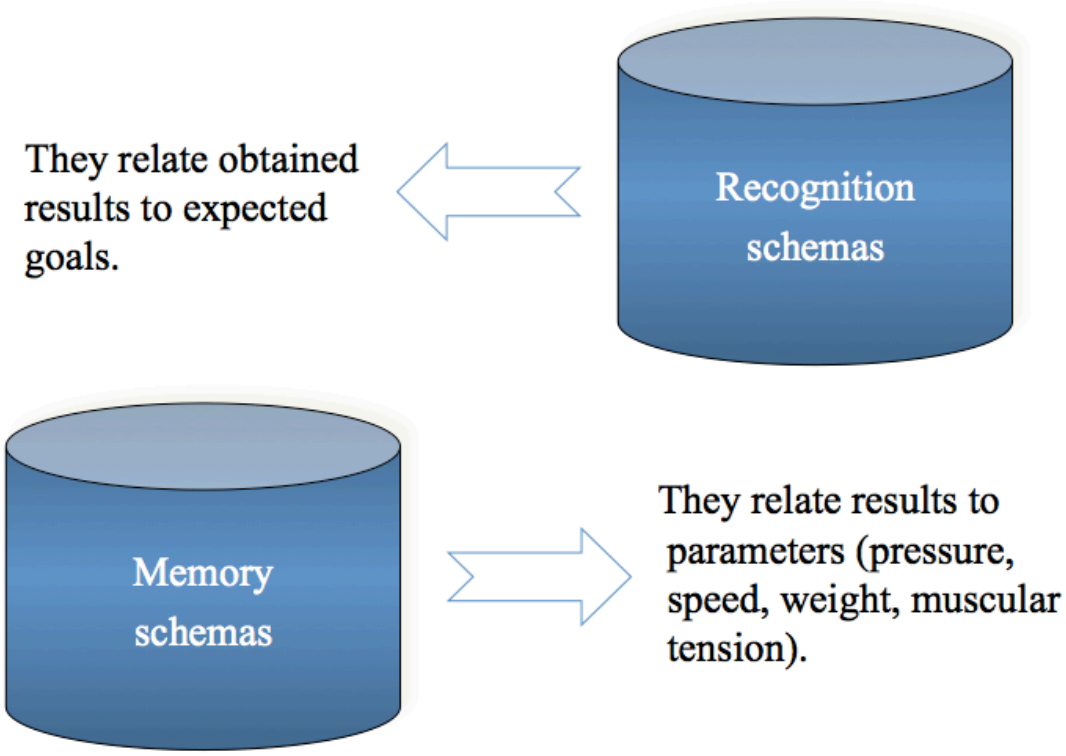
Information processing is defined as the "conversion of latent information into manifest information" (McGonigle & Mastrian, 2011). It has three stages: the first one is called input, and takes place when the system receives stimuli from the environment, selecting and storing the most relevant information. In the second stage, stimuli are analysed in order to select an appropriate response, and in the third stage the response is organised and the movement is performed. Two theories have had a special influence in understanding ML, namely: The Close-Loop Theory of Adams (1971) and the Schema Theory of Schmidt (1975). Both theories are initially compatible as they address different types of movements.

Adams proposed a Close-Loop model for movement control (figure 2.3). In this loop the origin of the movement is determined by what he called a trace of memory that might be considered a personal library of experiences. During movement performance, performers receive their own feedback, obtaining information about the characteristics of the movement. This feedback is compared to the perceptual trace that includes previous performances and corrections. After this information performers correct the movement and the loop starts again. One limitation, usually attributed to Adams' theory, is that it is not valid when learning new movements:



2.3. Adams' close-loop theory.

Schmidt's Schema Theory (figure 2.4) resolved some of the limitations of Adams' model. Unlike Adams, Schmidt thought that human beings do not learn a certain movement in particular but create general motor programmes that allow performing several movements that show similar characteristics. This is also valid when learning new movements. Schmidt claims that performers elaborate two types of schemas. On the one hand, memory schemas allow relating outcomes with those parameters that have an impact on every movement. In this case sound production in violin playing depends on parameters such as the speed and length of the bow, the contact point of the bow on the string and muscular tension. On the other hand, recognition schemas relate outcomes with initial goals. In order to create these programmes performers have several strategies at their disposal, namely: exploring programming rules (how their instrument works), learning the relationships between movements (which movements create interferences and which ones reinforce other movements), and also using varied practice as well as allowing errors happen.



2.4. Schmidt's Schema Theory.

Practice

I now turn to the educational concept of practice, which is not only applicable to the repetitive studies of musicians or sportsmen. It is worth noting that in the psychology literature, learning strategies are often referred to as 'practice', as is so done throughout this thesis. The most familiar concept of practice for musicians is the daily repetition of pieces and exercises in order to master them. However, S.G. Nielsen (1999) defines practice as 'activity that relates to intended goals', including those activities that teachers develop during the lessons to help their students acquire knowledge and improve their skills. Similarly, Susan Hallam (1997) defines effective practice as 'that which achieves the desired end product, in as short a time as possible without interfering with long term goals', and includes, under 'practice', not only the student's working through pieces, but also the teachers' use of instruction. In this thesis I reserve 'practice' for all those tasks intended to provoke learning in the student. These include not only the physical repetition of movements and musical excerpts during the student's solitary practice but also the instructions given by the teacher at the lessons.

In this section I analyse the structure and elements of a single lesson and discuss those types of practice that teachers use to transmit information and generate learning in their students. Educationalists such as Susan Hallam or specialists in ML such as Antonio Oña and Ignacio Viejo have described numerous activities that are related to an increase in teachers' effectiveness and they also agree that it is more beneficial for teachers to use more than one of these strategies simultaneously. In the first part of this section I review some of the tools as described by specialists in ML, sports and music education. I then analyse how these tools can be applied in a music lesson before making some conclusions. In the appendix I have included data derived from an empirical study developed from observing lessons of teachers from diverse backgrounds and with different levels of expertise. In this case study I show the data collected and note comparisons between the teaching habits of the teachers.

A case study developed by Barry and McArthur (1994, pp.44-55) shows that teachers' procedures are often only supported by intuition and trial and error: 'Teachers' approaches to practice are not always consistent with the literature and practice strategies endorsed by college teachers' and 'often differ from those used by teachers of pre-college students'. In ML, learning always involves physical repetition but other factors such as the number and type of channels used to send the message or the combination of more than one strategy have proved to be beneficial to the learning process. This highlights the importance for teachers of knowing the existing literature not only on music but also on ML. A high number of students at college level have the perception that they have not been given strategies detailing how to practice. Further, those who are more likely to use such meta-cognitive strategies are higher in self efficacy generally (Nielsen, 2004). Now I turn to analyse some of these meta-cognitive strategies that teachers use to provoke learning in the student.

Types of practice

ML is closely related to repetition. It is necessary to repeat certain movements periodically in order to acquire a new motor dexterity. Teachers conduct these movements position themselves as the main frame of reference during the pupils' practice. Individual lessons are the scenario in which teachers transmit their teachings, lead pupils' practice and facilitate learning by using diverse resources such as pieces, collections of studies, scales methods, blackboard, CD, video or DVD.

Even though there are many tools at a teacher's disposal, a majority of the teachers observed in the case study (part two of this thesis) tended to use only a few on a regular basis. Usually, pupils performed a piece prepared in advance, studied a scale in the lesson and observed the teachers as the latter responded to the former with corrections and proposals, as well as practical examples from their own instrument, simplifying the resolution of any problem. This routine that produces learning derives mainly from two kinds of practice, physical and cognitive. However, teachers can benefit from other types of practice such as modelled, imagined and guided practice.

1. Physical practice

Physical repetition of a movement is essential in ML and there is a close relationship between the number of repetitions and the level of perfection that we reach in our performance (Lehmann 1997, Sloboda 1985). This is the reason why it is preferable to indicate to the students the number of times they should repeat an exercise rather than how long they should be studying. Under my own experience as both a violin teacher and student, practising at home during a certain number of hours does not always mean that the student has practised each one of the exercises or pieces appropriately. Students tend to spend much more time on the most enjoyable activities to the detriment of the most boring and sometimes they finish all their homework before the stipulated time. They will therefore spend the rest of the time repeating the pieces without any other aim but letting the time go by, and, as a consequence, lack of motivation. It is my view that effective practice is not only related to the number of repetitions but that these must be meaningful for the performer/student. It is also important that pupils know the rules and principles governing movements and that they can relate these movements to others that have been learned previously (Vernetta et al. 1996).

2. Cognitive practice

Cognitive practice refers to the instructions and information provided by the teacher. This is perhaps the most frequent type of practice since it is necessary to know the characteristics of a movement, as well as the objectives it pursues, to perform it correctly (see video example 2.1). Giving information is considered by Buck (1944) to be one of the duties of teachers but success will depend on the teacher's capability to transmit this information. 'To promote efficient learning during practice, one educational implication would be that teachers instruct students in how to regulate the intensity and speed of their cognitive activities in order to secure

success' (Nielsen, 1999). This understanding allows pupils to create strategies when practising and to gain self-efficacy (Nielsen, 2004). However useful spoken information may be, it is always essential for the teacher to adapt their teaching to each student's maturity, character and academic level in order to ensure that the message is accurately understood. In order to avoid blocks, the amount of information must be small thus allowing the pupil to understand and assimilate one step before going on the next (Sloboda, 1985). According to Lehmann, metaphors are useful when trying to transmit a musical idea or a certain character but an excessive number of them 'may cause a conflict in the relationship between pupil and teacher, when the pupil cannot understand the metaphors' (Lehmann, 2007). Unnecessary or too complex explanations should be generally avoided because they can overwhelm or create confusion (Lehmann, 2007). It is further necessary to continuously monitor the feedback that the student reports to teachers. This feedback should be prompted by the teacher through questions to ensure the pupil has a proper understanding of the message. Asking students to formulate the question again or even create an example about what has been asked (Sloboda, 1985) are effective methods for doing this. This feedback is helpful to avoid repeating mistakes and allows the pupil to develop good habits.

Sometimes the structure of the lesson is pre-established and, if so, usually follows the routine of first hearing scales before studies and finally pieces (with some variations according to each teacher). A research study including more than one hundred teachers from conservatories and schools of music in Spain (Forcada, 2007) indicates that most teachers give their lessons without planning or structuring them beforehand and, even among those who plan them, only a small percentage do it in writing. Thus teachers tend to use mainly physical and cognitive practice in a seemingly random way, ignoring other possibly useful devices described in ML theory.

3. Modelled practice

Research on ML suggests that observing the execution of a movement can generate learning (see video example 2.2) and the closer the model to the student the more effective the learning is (Zubiaur, 2003). It is more effective to observe oneself through recording than to observe a classmate; it is preferable to observe a classmate than a teacher; and, finally, the teacher is a better model than a soloist at a concert. Therefore, the teacher's examples should not be rejected nor the use of soloists' recordings and specialized documentaries. Studies conducted on skills teaching highlight the influence of video recordings on child learning: 'Cinema's ability

to create a unique experience gives it unbeatable power as a teaching tool' (Champoux, 1999). It is convenient to keep a balance when using several of these models, taking into account the quality of the models as well as the specific needs of every student. Singer (1986) points out that the eldest pupils can process more information and take better advantage of this kind of practice although musical examples played by the teacher can condition pupils' interpretations at an advanced level (Barry & Hallam, 2002). Andreas C. Lehmann (2007) suggests diverse strategies that could help teachers to reinforce the information by utilizing extra-musical analogies: 'perhaps bodily gesture, vocal intonation, or other expressions of emotion'. The youngest children might find difficulty keeping their attention, planning or monitoring their practice at home, and parents may be helpful modelling and verbalising (Lehmann, 1997). Studies by Brokaw (1983), or Davidson et al. (2002) show the relationship between achievements and the amount of practice spent under parents' supervision. Although pedagogues from different backgrounds agree that the role of the parent must be used, it should nevertheless be adapted to not only every age but also to every child in particular, as explained in the Suzuki or Rolland methods.

Nowadays, advances in the field of technology make it easy to have a digital camera in order take pictures of the students periodically as well as to record short videos that can be watched immediately providing a useful source of feedback. Other possibilities of modelled practice are audiotapes, with performance models or instructions for the practice at home, and videotapes such as proved effective in experiments developed by Linklater (2002). Even audio recordings with accompaniments can be found in methods and collections of pieces for children (e.g. Suzuki Method; Sheila Nelson's Series; or Solos for Young violinist, by Barbara Barber). Finally, it is not just physical movements or abilities that can be modelled but also attitudes, strategies and habits (Hagger et al., 2007). Since teachers themselves are learners they can also model for pupils the process of continual learning.

4. Imagined practice

Imagined practice (see video example 2.3) is defined as 'a performance of the skill or exercises related to the skill from a cognitive representation' (Oña et al., 1999). Cahn (2008) defines it as 'cognitive rehearsal of a task in absence of overt physical movement'. Although many teachers may question the use of learning movements without performing them, authors from the field of Music Psychology (Hallam, 2007) as well as ML (Singer, 1986) and Sport Psychology (Oña, 1999) show that observing images can contribute in a significant way to the acquisition of motor dexterities. 'The

stimuli that our mind reproduces and the real stimuli we experience when we look, listen or make a movement are basically the same when we reproduce a mental image, there is not much difference; this essentially means that it has the same effect in the brain and in the Central Nervous System to reproduce something and to experience it in the real life' (Singer, 1986). References to such images not only include the movements we do when working on a specific technique but also sensations, muscular tensions, weight of the instrument, temperature of the room and presence of audience among others. This helps representations to be as complete and close to reality as possible. The human capacity to imagine can be developed through exercises such as the visualisation of small objects with simple shapes after observing them for some seconds. As a second step, Oña (1999) includes the visualisation of objects rotating in the air, trying to recall the maximum number of details regarding their physical characteristics. Other systems to develop mental memory can be more music-specific such as 'a mental rehearsal linking the sound of the melody to instrumental fingerings' (McPherson, 2005). Palmi (1987) recommends not using this type of practice with students below ten years although methods like Suzuki try to develop these skills in children from the earliest stages through games and exercises.

Further, educationalists such as Barrett and Hallam (2002), as well as Cahn (2008), claim that imagined or mental practice is more effective in the following situations: when learners have had some prior experience with the task or can express the task verbally; if the task is simple; if mental practice is combined with physical practice; in the first stages of learning a task; when learners have been trained in mental practice, and, if the sessions of mental practice are brief. Imagination can be used to take advantage of the resting time after a session of physical practice (Viejo 2004) and it can be useful for memorizing or playing by ear (McPherson, 2005).

Although many sources related to movement teaching encourage teachers to use mental practice among their strategies there is no unanimity about how effective this is. Some experts in ML approve the use of mental visualization as a complement to other types of practice: 'Physical practice is better than mental, but mental is better than doing nothing' (Singer, 1986). Many subjects - who participated in experiments developed by Cahn (2008) - expressed their surprise at the value of mental practice. They even regret not having been taught this tool before and Cahn suggests that mental practice strategies should be developed in pupils next to the other and more frequent types of practice. Although mental practice can cause some scepticism, none of the sources from the reviewed literature has yet outlined any negative

consequences when using it to learn or teach movements in general study or music in particular.

5. Guided practice

Guided practice takes place when the teacher physically touches students or their instruments, or marks and external elements are included in order to help pupils to increase their control and to perform a movement with greater accuracy (see video example 2.4). This type of practice should be used sparingly to allow the student to take the initiative of the execution of the movement immediately. Violin pedagogues like Suzuki and Rolland specify in their methods the use of stickers, marks, counterweights and many other objects in order to guide pupils' movements. It is also possible to find these marks and aids in activities that involve movement performance such as ballet or sports. Thus, windsurf experts Target and Cathelineau (2002) identify these aids as external indicators: visual or auditory references that allow players to perform each repetition accurately until sometime later internal indicators (those located under the skin, like nerves) guarantee high-quality repetitions before then allowing external indicators (sight and hearing) to focus on a different activity. An example of these external references can be found on the stickers that some teachers put on their pupils' bows in order to help beginners to distribute the length of the bow properly. The eyes help students to stop the bow on the stickers accurately. After a certain number of repetitions and the movements are internalized stickers can be removed and the muscles and nerves take control without the help of the eyes.

Conceptual application to lesson planning

Studies in ML emphasize the importance of physical repetition as well as the fact that none of the types of practice outlined above should be used to the detriment of physical practice. Christian Target and Jacques Cathelineau (2002) show that a good balance between the different kinds of practice, as well as good organization, will allow students spend most of the lesson time in physical practice, which is often diminished due to an excess of teachers' verbal interventions and examples.

In the experimental studies described in Part two, results show that not only the number of verbal instructions but also their lengths differ between experienced and novice teachers. The former tend to give short instructions maintaining a high level of pupil activity. This helps to motivate students - keeping them involved in the music and avoiding frequent distractions. As Lehman notes, 'active participation of students is a primary determinant of attentiveness and achievement' (Lehmann, 2007).

Likewise, all the consulted sources consider that a combined use of the different kinds of practice will be useful if they are regularly used as a teaching habit and not introduced as an occasional feature. For example, recording students at each concert and at the lessons, explaining examples through teacher or other student demonstrations, and guiding students' movements and training them in the periodic use of visualization. Psychologists such as Lehmann et al. (2007) suggest that we will increase the effectiveness of communication, and therefore the quality of the answers elaborated by students, by combining several strategies and channels at the same time (auditory, visual and kinaesthetic). In any case, the use of those channels will be determined by each situation in particular, for example, avoiding the use of verbal instructions in an environment in which sound is the main feature (during an instrumental group performance), or gestures when students are focusing concentration upon the musical score.

In addition to this, it is widely accepted that every individual tends to have a preferred channel for receiving information. As Roca writes, 'The good communicator should know the dominant channel in the person with whom he communicates, in order to establish a better affinity and to be able to obtain the desired effect, according to the causes and the aims of the communication' (Roca, 2005).

This knowledge of the diverse kinds of practice as well as the correct utilization of channels suggests that the efficient teacher needs to plan each session exhaustively, whilst doing so bearing in mind several points when designing its structure. Points to be considered include: the contents to be transmitted; the strategies to be used; the order in which activities will be timed in order to maintain a high level of motivation at any time; the rhythm that the session will follow and how the session contents will be related to other skills previously acquired as well as to those that pupils will need to incorporate further on.

Memory

Memory in music is usually related to the capacity to memorize the notes of a certain piece and their later evocation when performing it in front of an audience. However, and since music performance is a motor activity, it is not only necessary to memorize the different elements from the score when studying music, but to memorize very accurate movements after acquiring the abilities that allow us to perform them. Finally, stylistic elements, dynamics and phrasing that provide a musical sense to the performance need to be memorized also. Equally important for the memorization process is the recovery of the information when it is needed.

Performers use diverse strategies to store information as well as to recover it. The complexity of the mechanisms of storage and recovery depends on each performer's level of experience and ability. Therefore, different strategies could be used when facing analogous situations (Batting, 1979). These strategies can be taught from the first stages of learning regardless of whether the student has a good or bad memory. Indeed, 'With careful training a person with very poor memory may improve this manifold to the point of serviceability' (Seashore, 1967).

According to Hallam (2006) two types of memory interact when developing musical abilities. On the one hand, declaratory memory makes reference to the cognitive units that constitute knowledge. In contrast, procedural memory is in charge of the rules governing tasks. It is convenient to consider both types of memory when teaching a certain technical aspect because retention is reinforced when helping the student to understand the influence of the different variables in the final result.

The next paragraphs include a description of both the structures where the information discussed above is stored and the processes of storing and retrieving the information. The section concludes with an analysis of the implications that performing from memory has for musicians as well as the strategies that can help to make the process of memorising musical works easier.

Structures and processes

In recent times memory is not only considered a kind of store where information is kept but a multidimensional system that includes structures -where information is deposited for a limited time- and processes -more dynamic factors that include the stages of encoding, storing and recovering information- (Oña, 1999).

1. Structures

Three types of structure are defined according to the amount of information that they can contain and how long it can be retained (Child 2007, Viejo 2004, Torres 2006):

- Sensory memory.
- Short-term memory.
- Long-term memory.

When an organism receives stimuli from any sense that information is initially stored in the sensory memory. This is characterized by being a store of great capacity where information remains for a short period of time before we decide what to do with it. Possibilities include either using it to elaborate an immediate answer, ruling it out, or storing it as short-term memory. Neisser (1967) established two types of sensory memory: 'iconic' and 'ecoic'. Iconic is in charge of processing visual stimuli, whereas the ecoic stores auditory stimuli. Both memories are very volatile because only a maximum of 500ms can be retained in the former (Averbach and Sperling, 1961) and 250ms in the latter (Massaro, 1972). According to Oña (1999), the characteristics of these two types of memory are applicable to any type of sensory memory including the proprioceptive. However, he explains that 'it is difficult to think about a memory specialized on each sensorial modality since human cognitive activity tends to integrate all the modalities' (Oña, 1999)[3]. In any case, and due to its high volatility, the most relevant aspect of the sensory memory is that it is not affected by learning.

After this initial filter the information that is retained is stored in the short-term memory. Here it is processed with references to the previous experiences that have been stored in long-term memory. Unlike the sensorial memory, short-term memory can be used for cognitive tasks such as sight-reading and 'it can be loosely equated with the concepts of attention and consciousness (Aiello & Williamon, 2002). According to diverse researches the level of retention of short movements and oral instructions is similar (Posner & Keele, 1969; Stelmach & Wilson, 1970) and lasts between ten to twenty seconds. Short-term memory lets us reason, calculate mental arithmetic operations, solve problems, understand language and carry out executive functions (Estévez-González et al., 1997). According to this research, therefore, corrections must be done by teachers between five and thirty seconds after movements have been performed when there will still be traces in the short-term memory (Torres, 2006).

When certain information or actions are stored for a long time, that is, from several minutes to months or even years, information passes into the long-term memory. Torres (2006) establishes that 'Motor Learning is based on the precedent experiences registered in long-term memory'. Torres also gives some idea about how to retain movements for a long period of time. On the one hand, continuous

3 From the original in Spanish: 'Es difícil pensar en una memoria especializada en cada tipo de sentido, ya que la propia actividad cognitiva humana tiende a integrar todas las modalidades'.

movements with a cyclical character are less likely to be forgotten. On the other hand, we can use some strategies that will help us with the task of retaining a movement, such as systematic practice and a conscious and deliberate assimilation, giving information meaningful denominations as well as coding or classifying motor actions. It is important to keep pupils' attention during the learning process and this is especially difficult with children because they can easily be distracted by external stimuli. Taking into account children's limitations of attention, teachers should not expend too much the time teaching a new skill. Oral codification of information, that is, expressing with words the kinaesthetic feelings we must use to perform a movement, is helpful to retain it in long-term memory. According to other researchers, such as Aiello and Williamon, information needs to be stored in the long-term memory as soon as possible and it is equally important that the activity, to be stored in this area, becomes familiar and is related to other well-known activities. Doing so creates meaningful learning and 'Individuals must associate the information to be recalled with appropriate retrieval cues' (Aiello and Williamon, 2002).

2. Processes

Processes are the most dynamic elements of memory and refer to those activities that take place when memorizing information. These include encoding, storage and recall of information.

Encoding is the process of transforming sensory stimuli into meaningful units of information that can be assimilated by memory systems (Oña et alter, 1999). It is easier to encode and retrieve information that is related to previous knowledge (Hallam 2006, Lehmann 2007) and, therefore, the performer's level of expertise is a key factor. Another key factor is that teachers carefully base every new skill on those that pupils have already mastered.

After a first reading of a piece, expert performers usually select those fragments that present the highest difficulties and start practising until movements become automatic. Performers use different strategies to overcome difficulties and memorize fragments depending on their experiences and technical resources. Once the smallest elements are isolated and assimilated, a new process starts in order to connect them in meaningful units. This mechanism is called 'chunking' (Lehmann, 2007) and every section usually includes several chunks:

> Chunking is in essence a memory mechanism that links our perception to previously stored knowledge… The ability to group and make sense out of information depends on previous knowledge (Lehmann, 2007:112).

Different channels can be used during the codification process in order to captivate stimuli. Utilising visual, aural and kinaesthetic - although combining several of them - will offer better results (Hallam, 2006). Visual stimuli come from the notated music as well the shape of the hands or the finger patterns. Aural stimuli allow players to imagine the sounds of the piece and also evaluate the quality of the performance. Kinaesthetic stimuli include key or string resistance, movements of the fingers and posture of arms or wrists (Aiello and Williamon, 2002:167). These external indicators are permanent references that help performers to control the accuracy of every repetition until movement becomes automatic. Once the player has memorized a certain movement, internal indicators (those which are under the skin, such as nerves) start working, controlling this movement and allowing ears and eyes to be available to focus on a different skill (Cathelineau, 2002). Once the information is stored in long-term memory it is ready to be recalled when needed. In terms of music, recall refers not only to movements or skills but also to other characteristics such as dynamics, character or phrasing (Lehmann, 1997).

Performing from memory

Scholars and teachers have different opinions about how important performing from memory is. Seashore believes that it is a useful but not an essential tool, stating that 'while retentive and serviceable memory is a very great asset to a musical person, it is not at all an essential condition for musical mindedness' (Seashore, 1967).

Pupils who do not memorize pieces on a regular basis usually find doing so a difficult and stressful task. Rather than helping them to play confidently, the fact that memorizing a piece is a hard task adds anxiety during the performance because they are afraid of getting lost. However, those pupils who are used to memorize pieces from the first year find it a very helpful tool that allows them to express their ideas more freely and monitor visual aspects of their performance, such as the posture. Additionally, 'Enhanced visual communication augments audiences' experiences at large' (Davidson, 1994)

In the Suzuki method children always memorize the pieces that they play as an essential part of the method. Also, they start reading music only some years after beginning playing. This helps them to understand the logic of the instrument and to focus their attention on priorities like intonation, tone quality or musicality (Kreitman, 1998).

Strategies

Motor skills stay longer in the memory than concepts, being particularly resistant to forgetting (Hallan, 2006). However, repeating movements mechanically without a certain strategy will make the process of encoding and storing information less efficient. Knowing the general rules governing motor skills makes them easier to memorize and retain by the performer (Oña, 1999). Following these ideas, teachers should give their pupils tools to understand the logic of any motor skill and not only ask them to repeat movements passively. Thus, it is easier to remember how to get a beautiful tone if pupils know the relationship between length of bow, pressure, contact point and speed and how these affect the emission of the sound. It is also helpful to relate new information to the knowledge of structures that are already established. Developing this association system between new and old information can help performers to improve their power of memorization (Buck 1944, Hallam 2006).

Teachers can use different strategies to help their students acquire and memorize skills and movements. One of them is to ask pupils to repeat the same movement several times. Repetition is essential in ML and there is a close relationship between learning and the number of repetitions. Teachers can also use other techniques described in the section about practice, encouraging students to observe other students, their teachers or even a recording of themselves performing the same movement or skill. Additionally teachers can guide pupils' movements by making the necessary contact with the instrument and the pupil or even using stickers or other marks that act as a reference. Teachers can also ask pupils to imagine themselves practising, or just explain how to improve their performances. According to Hallam (2006), it is better to combine strategies in order to gain effectiveness, for example asking a pupil to repeat a movement after his or her teacher has explained how to do it and has shown how another student has done the task too.

Kato Havas insists on the value of recalling a piece without playing. She asks her students to imagine they are playing the piece during a stroll, far away from the music or the instrument, in order to strengthen the memory. She advises to 'Imagine and hear the music as if it were played on the violin... once memorized go over it during a solitary walk' (Havas, 1961).

Suzuki teachers also insist on hearing a CD to help memory. In fact, Suzuki students do not generally read music during the first years and instead memorise all

the pieces after listening to them on the CD daily. They try to imitate the system that we use to learn our mother tongue, where we listen and repeat words for some years before we start learning grammar or how to read. Games designed to recognize the pieces are helpful to avoid mistakes when memorizing (Kreitman, 1998) and they are mainly used in the group lessons. Suzuki students develop muscle memory when singing while listening to the CD, and this allows them to sing in the same key that pieces has been written - creating the illusion that they have absolute pitch - while adults without absolute pitch tend to sing in a vocal tessitura that is comfortable for them (Saah & West, 2004).

Strategies suggested by Havas include hearing the music without the instrument daily, 'looking at each phrase as a whole to see how it fits in architecturally with the rest of the composition' and 'transferring the image to the movements of the left base joints' (Havas, 1961, pp.68-69). Less experienced performers tend to rely on repetition while the most advanced use cognitive strategies and take advantage of meaningful musical structures (Lehemann, 1997). 'Memorisation is improved when analytic pre-study is undertaken prior to physical practice' (Hallam, 2006, pp.96-97). Including analysis within lessons is a way of helping pupils to relate parts to other parts and to remember musical elements (Ward, 2007).

Depending on the channel used to transmit the information it is possible to talk about kinaesthetic, visual or oral strategies and they provide the basis for the development of the schema. Every learner has a different level of predisposition to learn through one of these strategies, although it is generally accepted that memorisation improves when combining all of them. Kinaesthetic and visual strategies work well in young children who even may not realise what they have to do, while deep explanations are more suitable in older learners (Hallam, 2006, Lehmann et al. 2007).

It seems obvious that systematic practice reinforces the permanence of information in memory (Torres, 2006), but the way in which performers practise is also significant. It is interesting to introduce variability in practice in order to avoid memory lapses (Lehmann et al., 2007). On the one hand, varying factors like pressure, bow length, speed, or contact point helps pupils to understand rules and to create schema (Schmidt, 1975) that support long term memory. On the other hand, memory is context specific: we not only memorise contents or skills but also the learning environment and the psychological state associated with it. This can produce memory lapses during the public performance which could be avoided or at

least minimized introducing variability in the context of the daily practice as well as imitating performance conditions (Lehmann et al., 2007).

Motivation

It is commonly accepted by educationalists, psychologists and teachers that motivation has a decisive role in all teaching and learning processes (Dweck 1996, Oña 1999, O'Neill& McPherson 2002, González 2005). High levels of motivation imply that pupils will be willing to spend more time and effort in a certain task and, therefore, they will be more likely to succeed.

Human beings feel naturally attracted by learning (Mahillo, 1999), and a prima facie case could be made that learning is a motivating activity in itself. Unlike primary and secondary school studies where attendance is compulsory, music tuition is generally voluntarily chosen by children who have decided to learn how to play an instrument and so they tend to be relatively well motivated (Hallam, 1998). However, researchers such as Buck (1944), Carr & Claxton (2004) show that motivation is not a permanent state but a living process that depends on diverse internal and external factors as well as being enhanced through appropriate training (Bugelski, 1960 in Barret, 1972). Thus, teachers are the main source of stimuli during the teaching sessions and their influence on pupils can determine their level of motivation and, consequently, their level of enthusiasm or commitment to serious practice. Case studies, such as the one carried out by Gottfried et al. (1994), show also the role that parents can have in children's motivation and achievement.

Here I consider several types of motivation alongside some other issues including: the most relevant theories in the field; the reasons that teachers can have an influence on pupils' decisions to act; the role of parents, teachers and other peers; terms such as self-concept and self-efficacy (which are part of the human personality and that are determined by feedback from the environment) as well as some implications for teachers and performers, whose understanding of motivation can be related to more rewarding experiences and higher achievements in their teaching or performance (Lehmann et al. 2007).

Conceptualization

The word 'Motivate' comes from 'motivus' (driving force). This implies that motivating someone means giving him/her reasons to move in a certain direction, changing his/her behaviour and acting toward a certain goal (Mahillo 1999; Viejo 2004).

Some definitions of motivation emphasize the intensity and persistence of these changes in human behaviour. Motivation is the 'theoretical construct used to explain the initiation, the direction, intensity, and persistence of behaviour, especially goal-directed behaviour (Brophy, 1998). Other characteristics include effort, direction and intensity are also emphasized by Sage (1977). Indeed, Sage claims that motivation is a non-static state that depends on personal characteristics as well as situational factors.

Other definitions underline the importance of external stimuli as the main cause that moves someone to act, and include references to the possibility of becoming motivated through a learning process Bugelski writes that 'motives are themselves responses to stimuli; they do not arise spontaneously or independently in the absence of stimuli; they are like habits in this respects (and) must be thought of as organised patterns laid down in the nervous system through a process of training' (Bugelski, 1960). O'Neill et al. (2002) also relate motivation to learning processes and establish a correspondence with achievement, saying that motivation is an 'integral part of learning that assists students to acquire the range of behaviours that will provide them with the best chance of reaching their full potential'.

Hallam (1998) believes that motivation is the result of maturity and social influences, and she affirms that it is the individuals who determine their behaviour by setting goals. Hallam (2002) enumerates other factors that can enhance motivation. Some of these factors are intrinsic to the individual, such as personal characteristics and previous experiences. Some other factors have an extrinsic origin, such as the environment, and others come from the interaction between this environment and the individual. Psychologists from the field of sport also consider both external and internal factors as motives, which are an incentive for individuals to act. Generally they agree that both factors intervene simultaneously and that motivation in itself does not increase achievement (Galloway et al., 2004). Self-confidence is another term that enhances performance and can be improved by developing self-awareness, which is related to the capacity for attention (Viadé, 2003). The importance of self-concept and self-efficacy is also evident in studies carried out by some well-known specialists in education and music psychology such as González

(2005), Song & Hattie (1984), Austin et al. (2006), Galloway et al. (2004) or O'Neill & McPherson (2002). Both terms will be analysed in detail in subsequent paragraphs.

Independently of the differences in the origin of the reasons that motivate individuals to act, it seems that teachers and parents' influence is a decisive factor in the level of success of students. Further, they can be made more aware of their interventions and how to improve them through deep knowledge of the types of motivation and its theories, as well as through the analysis of children's feedback.

Intrinsic and extrinsic motivation

The origin of the causes that encourage individuals to act is diverse. As mentioned above, Mahillo (1999) and Hallam (1998) stress the motivating character that learning has in human beings. Exploring, learning and updating our skills is an intrinsically human tendency and it is especially remarkable in music students since they usually start attending lessons after showing a personal interest in learning an instrument to their parents. Learning how to play an instrument either for fun or to become a serious player is called an intrinsic motivation, but this is not the only reason students may have to learn or play music. Individuals have different interests that attract them to learn more about certain topics. When these motives come from an inner disposition toward certain domains, which makes individuals enjoy acting in a specific way, we say that the activity is intrinsically motivating. Researchers have conceptualized intrinsic motivation in terms of 'the performance of activities for their own sake, in which pleasure is inherent in the activity itself' (Berlyne 1965, Deci 1975, Eccles et al. 1998). Other factors that are intrinsically motivating include the sense of developing mastery and behaviours that promote competence (Hallam, 1998). But it is not always easy to distinguish the intrinsic or extrinsic character of a drive, and generally both types of motivation act simultaneously (Lehman at al., 2007).

A second type of motivation described by psychologists is called external motivation, that which takes place when the individual works toward an external reward, far from any satisfaction caused by the activity in itself. Stimuli from external sources play an important role in the motivational process, and not only when taking the decision of starting violin lessons. Since learning how to play an instrument is a long-term task, the level of motivation cannot remain at the same level throughout the duration and it is usually external influences and reinforcements that help children to carry on with their efforts at a high level over time. These influences come from cultural values and especially from teachers and parents as well as interactions with other peers, relatives and friends. Considering these two large main types of

motivation, namely internal and external, other studies that explore the relationship between them will be analysed in the following paragraphs. These studies show further the interaction between intrinsic and extrinsic motivation, and how they impact on students' decisions.

It is possible to find studies supporting the prevalence of both intrinsic and extrinsic motivation. Although the literature reviewed generally puts the stress on external factors (social, cultural or environmental), according to Jerome Bruner (1987) these external reinforcements are unnecessary. Bruner believes that learning has motivating component in itself, as well as the challenge of uncertainty, although external rewards can hide this pleasure. The relevance of intrinsic motivation is also emphasized by educationalists such as González (2005), who enumerates some of the cognitive consequences that learning has in the individual, namely: improvement of creativity, cognitive flexibility, and a deeper and more meaningful understanding of concepts. Another study, developed on nine- and ten-year-old students, stresses the relevance of the intrinsic motivation as being: 'Positively related to encouragement of task endogenously and negatively related to provision of task-extrinsic consequences' (Gottfried et al., 1994).The development of personal autonomy is also considered one of the benefits of intrinsic motivation, in contrast to a controlling style of teaching (Lehmann et al., 2007). Autonomy and a gradual generalization of behaviours lead to reinforcing of intrinsic motivation (Oña, 1999).

Exceptional musical events can provoke an impact sufficient to install this intrinsic motivation. These experiences usually take place during childhood, in a friendly and non-judgmental atmosphere (Lehmann et al., 2007). However, since music learning is a long-term activity, it is important to keep pupils' motivation at a high level during the whole process. In 1979, Gottfried *et al.* developed a case study over 130 infants to observe the evolution of children's motivation in two dimensions: the individual within the group and the group over time. It was concluded that intrinsic motivation becomes more stable with advances in age and that it also depends on the subject. Another advantage shown in this study is that children with higher intrinsic motivation have lower levels of anxiety from childhood to adolescence, and initial levels of intrinsic motivation also determine the evolution through these years. In another case study, O'Neill and McPherson (2002) relate high levels of intrinsic motivation in musicians to a long-term adherence to music playing, to a higher sense of self-worth, and to higher achievements, claiming that this is more important than a student believing in their own ability to succeed.

Research in music is consistent with findings in other academic disciplines. Suggestions by O'Neill et al. (2002) to maximize intrinsic motivation include selecting

repertoire of an appropriate difficulty and involving students intellectually by asking them, for example, for strategies to work on a certain fragment. This establishes a relationship between the amount of practice and the level of cognitive engagement (McPherson & McCormick, 1999, in O'Neill, 2002). This is consistent with Bucks (1944) who encouraged music teachers to be aware of the cognitive engagement and of pupils to 'challenge their intelligence. Real teaching is not telling, it is making them find out... the habit of using the mind has been strengthened' (Bucks, 1944).

Social and achievement motivation

Besides intrinsic and extrinsic motivation, two other types are widely described in the literature. On one hand, the scientific literature emphasises the influence that the social context has in children's adherence to music is important (Creech& Hallam, 2003; González, 2005; Gottfried *et al.*, 1994; Gottfried *et al.*, 2001; Lehmann *et al.*, 2007; Moore *et al.*, 2003; Hallam, 1998; Reeve *et al.*, 1999; Sloboda, 2005; Viadé, 2003). This social motivation is mainly constituted by cultural values as well as influences from teachers, peers and the student's own family. On the other hand, the achievement motivation theory (Atkinson, 1964) supports the finding that the level of success may determine students' motivation and how its importance is perceived.

It is difficult to establish limits for each type of motivation. Social as well as achievement motivation have their origin in external influences and could be considered as types of external motivation. However, they also may have a strong influence in the intrinsic motivation that pupils have to play music. Children's preferences depend on the traditions and cultural values of the society where they live as well as their environment at school, home or their music centre. Thus, Hallam states that 'musical motivation is determined by complex interactions between the individual and the environment within which they find themselves' (Hallam, 2002).

According to Austin *et al*. (2006) this relationship between the individual and the environment is constant, reciprocal and context specific, underlining the support received by children who play in a school ensemble or a garage band. This idea is also consistent with findings by Lehmann *et al*. (2007) that affirm that 'social standing among their musical peers strengthen commitment to music'. Under the right context children can feel more motivated, as they feel integrated with their peers. Sloboda (2005) supports this idea that 'children are aware of the association of different types of music with social group identity', and suggests that teachers should take into account the cultural background of their students, their habits and preferences about music.

Some specialists from the field of sport psychology are more cautious when describing the relationship between social influences and success. Viade (2003) agrees with the positive role that social motivation plays as a reinforcement. He does however maintain that achievement is mainly improved by intrinsic motivation and finds that the more successful athletes are those who are intrinsically motivated. But social and intrinsic motivations are not always considered as mutually exclusive concepts. A case study developed by Gottfried *et al.* (1994) of nine and ten years old students, to check the influence of their mothers' intrinsic and extrinsic motivation, showed the 'validity for the role of parental motivational practices in children's academic intrinsic motivation and achievement'.

Conclusion to chapter two

In this chapter I have reflected on the connection between violin pedagogy and the acquisition of motor skills. Learning how to play an instrument presupposes the acquisition of certain technical skills. They are none other than highly specialized motor abilities, thus their acquisition is governed by the concepts, principles and methods of ML. Considering that ML is a very wide field with many topics I have decided to study memory and motivation specifically to narrow this field and, in particular, their relationship to effective teaching strategies.

Efficacy usually depends on the expertise and the strategies planned by teachers to induce learning and to motivate their students. Experts and novices act in different ways. Novices tend to use more, and longer, verbal instructions, whereas experts focus their efforts in keeping a high level of activity in their pupils with shorter verbal instructions. Balance between different types of practice helps students to acquire new skills in a more logical way, creating automatic actions faster. Strategies can be combined to increase effectiveness. Examples of this include global and analytical approaches (Vernetta et al. 1996), total and partial (Singer, 1986) or conceptual, kinaesthetic and musical strategies (Mcpherson, 2005). The view 'good learners have to know a large number of strategies and to understand when, where, and why these are important' (Borkowski & Muthukrishna, 1992) reflects this.

A deep knowledge of how human beings use experience to generate learning ought to allow educational professionals to improve their pedagogical interventions, to structure the content of the lessons in a more logical way, to use communication channels with greater effectiveness and, all together, to optimize their resources and obtain better results. I now turn to the analysis of some of the most relevant violin pedagogies originated in the 20th Century.

Chapter three. Violin pedagogy

In this chapter I describe those pedagogies used by the teachers and students who have participated in the experimental studies, namely, the Suzuki method, Rolland pedagogy, Zweig pedagogy and Havas' New Approach. These pedagogies have been chosen for their relevance during the last fifty years. The aim of these analyses is to check for references to the ML principles outlined in chapter two. Further, the extent to which ML is currently applied in reputable violin pedagogies will also be considered. This includes those aspects applied by teachers, whether they are conscious of doing so or not, and even those that have not been found to do so when their lessons were observed as part of the experimental studies of this thesis.

The Suzuki method

The Suzuki method is known worldwide for its efficacy in teaching not only violin but also many other instruments to children as young as three years old. Through formal training teachers develop skills to communicate information and instructions effectively. They are also trained to keep high levels of motivation in their students and to develop memorization skills through conscious repetition and listening to recordings. Some of these aspects, which draw on key issues relating to ML, can be also observed in teachers who use other pedagogies, such as Rolland or Zweig.

Origin and evolution of the Suzuki method

Shinichi Suzuki was born in Japan in 1899 and his father was a samisen maker (a traditional Japanese three-stringed instrument) who in 1900 opened the Suzuki Violin Factory in Nagoya. Shinichi started learning the violin on his own before he graduated from the commercial college and, in 1920, when he was twenty-two years old, he moved to Germany and started attending violin lessons with Karl Klinger, who was a well-known violin teacher. In spite of this late start, Suzuki became one of the most influential violin pedagogues in the twentieth century (Hermann, 1981).

In Germany, Suzuki was impressed by how easily German children learn their mother tongue compared to the difficulties that Suzuki himself found in learning the German language. He started considering those factors and conditionings that not only enable children to learn their mother tongue with a high level of proficiency, but

also the accent of the region where they live. He reached the following conclusions, among others (Suzuki, 1946):

- All children learn their mother tongue with a high level of proficiency.
- The role of the parents is decisive in this process. They are permanent models for their children, correcting their mistakes lovingly and patiently, as well as positively reinforcing every new achievement.
- Children are immersed in an atmosphere where they constantly hear their own language.
- Grammar, as well as reading and writing, learning takes place once children can speak and understand fluidly.

Inspired by these principles Suzuki created an educational method in which the violin was considered as a tool to educate and transmit values to the children. Firstly Suzuki started developing his method at a Japanese kindergarten where, among some other activities, children memorised a large number of Haikus (short Japanese poems with four verses) apparently without great effort.

The new method spread across Japan rapidly. After Suzuki toured the USA with a group of students the American society became deeply impressed by the high technical and artistic level that Suzuki's students showed playing the violin at an unusually young age. This interest in the Suzuki method led to its expansion first in the USA and Europe before the rest of the world followed. In the present day it is one of the preferred methods for teaching young children and, although initially it was conceived for the violin, it can be adapted to other instruments such as the viola, cello, piano, flute and guitar.

The Suzuki method has thousands of teachers and students all around the world and its association has local, national and international branches which aim to spread the method as well as to guarantee a high level of teaching practice following Suzuki's values and principles.

Characteristics

One of the main characteristics of the Suzuki method is that it has a clear philosophy based on the following principle:

- Talent is not inborn but depends on the environment as, under the right environment, all children can develop their talent to a high level. (Suzuki, 1969).

Going against the idea of inherited talent, Suzuki makes the environment responsible for the level of dexterity and skill that children can achieve. The adaptation by Suzuki of the principles behind the way human beings learn their mother tongue is reflected in the following ideas present in his teaching method (Collier, 1985):

- Children start learning how to play the violin at a young age, usually as young as three or four.
- One of the parents must attend the lessons and assist the child with the daily practice at home.
- Parents correct children lovingly, reinforcing every new achievement positively.
- Recording of all the pieces in the repertoire are available so young children can develop ability by hearing proficient music on a daily basis (Suzuki, 1998, pp. seven and ten).
- Pieces are learned by rote. Music reading is delayed until children are familiar with the basics of the instrument.
- Every student attends a private lesson each week, besides periodic group lessons.

Suzuki emphasised how important it is for children to attend group lessons (Suzuki, 1998, p.13) where they work on ensemble skills, review old repertoire, explore technical issues such as intonation, sound or rhythm, develop memorisation skills, study music theory and benefit from their peers' influence. Despite this, Suzuki considered group lessons an essential complement of private lessons, but never a replacement.

The role of the parents in the Suzuki method is of paramount importance and changes as the child grows up. Parents adapt their role to the changes that children experience in their personal and musical development. Parents, next to children and teachers, are part of a triad that Suzuki considers essential for the correct application of his method.

Pieces in the repertoire are distributed across ten books, which include works by classical composers as well as traditional songs and some pieces composed by Suzuki himself. One of the deficiencies frequently attributed to the Suzuki method is the fact that most pieces in the repertoire belong to composers from the baroque period. This is generally dealt with by the extra repertoire that most Suzuki teachers use in parallel to the Suzuki books, typically including a solo as well as group pieces from a wide variety of composers and styles. Nonetheless, in the Suzuki method teachers are requested to focus not so much on the pieces but on the skills that every piece develops in the student. Thereby, skills are gradually presented through the repertoire and they are based on meaningful learning so every new element is supported by those previously learned. In order to consolidate the new skills appropriately, Suzuki encouraged constant reviews of the old repertoire as new pieces provide students with new knowledge and it is through this review process that they develop skills and learn.

Memory and listening

Developing memory skills is an essential element in the Suzuki method (Tanaka, 2002, pp.48-50). From their first lessons students learn the pieces by listening to the recording and to the teacher as well as by repetition. They continue playing from memory at the lessons as well as at public performances even after learning how to read music (Suzuki, 1949, pp.54-57). Skills gained from performing from memory show some advantages, such as enhancement of communication with the audience and the other members of the group (Davidson 1993, 1994). Additionally, playing from memory is claimed to allow the students to focus more clearly on technical and musical issues (Kreitman, 1998).

In the Suzuki method teachers use a diversity of strategies in order to enhance their students' memorisation skills. Each book includes, for example, a recording of all the pieces to be learned. By listening to the recording on a daily basis children become familiar with the pieces that they are going to learn in the future and they also improve intonation and tone. Another strategy that helps students to learn a piece from memory is to know its structure. This is something that children learn from the first piece in the repertoire, where they are shown the different phrases and its distribution, how many times the same phrase appears in a certain piece as well as differences and similarities in the work. As pieces get longer and more complex, teachers highlight those elements that are similar and those that are different, as well as those phrases that appear more than once in a certain piece, as in the case of gavottes in the third volume of the violin repertoire.

Group lessons are also an appropriate scenario in which to reinforce memory. On the one hand students listen to other peers who are more advanced, thus becoming acquainted with pieces they themselves will learn in the future. On the other hand, the most advanced students review old repertoire with the youngest meaning memorisation is consolidated. The fact that all students learn a common repertoire makes it easy for them to attend concerts and workshops in any country. Since both students and teachers know the repertoire from memory interaction among them is fluid and intense and lessons are dynamic.

Motivation

Suzuki teachers try to enhance not only children's motivation but also that of their families. Both children and parents are requested to observe some lessons before violin tuition starts in order to gain familiarity with the method. This also enhances the children's wish to start the lessons and play the violin. Once lessons start, teachers work closely with the parents in order to keep this initial motivation at a high level and to instil in children love for music and for performance (Collier, 1985, pp. 42-43). At the teacher-training course I was able to attend (United Kingdom, from 2007 to 2010) I noted that trainees learn how to work with the families, to introduce the method to the parents and to show them how they can cooperate with the teacher and help their own children. This training includes the rudiments of psychology, pedagogy and evolutionary development of children all geared towards helping teachers to adapt their teaching to the personal characteristics of each student.

The analysis of all the pieces in the repertoire is one of the most important tools that teachers acquire. Doing so they can help their students to prepare difficulties in advance, facing every new piece with confidence. Teaching points for every piece are discussed as well as the connection between all the pieces in the repertoire, meaning new technical issues are related to those already learned in the pass. Teachers can further complement the information of the teaching points that they obtain at the training course with supplementary literature such as Starr (1976).

Student motivation is also enhanced by the wide range of activities organised by teachers at the local and international Suzuki associations. Workshops, concerts, meetings and conferences enhance socialisation with other members of the educative community, allowing a permanent exchange of ideas and the enjoyment of sharing music performance.

Rolland's pedagogy

The Hungarian violinist Paul Rolland developed in the nineteen sixties one of the most influential projects of twentieth century string pedagogy. Unlike Suzuki, Rolland's pedagogy is not grounded on a philosophical base. His intention was to offer string teachers tools to increase their effectiveness independently of their backgrounds, beliefs, methods or contexts. Rolland's ideas have a scientific background and are based on an analysis of those movements used by string players when playing their instruments.

Michael Fanelli (2001) is the author of an extensive dissertation on Paul Rolland's biography from his early years learning the violin in Budapest to the development of the University of Illinois String Project. From this we learn that Paul Rolland was born in Budapest (Hungary) in 1911, where he completed a master degree in music at the Franz Liszt Academy, Rolland studied with Imre Waldbauer, as Kato Havas did some years later. His career as a performer led him to be a concertmaster at the Budapest Symphonic Orchestra and to play viola in both Pro Ideale and Léner string quartets. Besides his performing activity, Rolland developed a successful career as string educationalist in the USA. He founded the 'American String Teachers Association' and was the first editor of the journal '*American String Teacher*'. He won a bursary from the USA government to undertake research on the physical movements involved in string playing and from this point developed one of the most important projects in the twentieth century in the field of string pedagogy: 'The University of Illinois String Project'. This project included an analysis of the most relevant movements performed by string players, looking for the simplest elements so that they can be taught from the first stages of the instructional process. The aim of these procedures is to provide students with tools so they can play free of any unnecessary tension. As a result, students' technical and artistic evolution is faster and those bad habits that so frequently lead advanced players to suffer rehabilitation processes are avoided. The principles of this project were first put into practice in twenty-two schools in Illinois, as well as in other states. After this trial period, teachers participating in the project observed an improvement in their students' motivation as well as in their teaching methods (Rolland, 1974). After his death in 1978, Rolland's personal papers were placed in a closed deposit at Illinois University and no formal training or guidance took place until a group of Rolland's former assistants initiated a Summer workshop in 2010. After having contacted Illinois University it is my intention to start a research project on this material as part of my post-doctoral projects.

The main principles of Rolland's ideas will be analysed in the next paragraphs, as well as the contents of the video recordings and other materials made available for teachers.

The foundation

The elements needed by string teachers in order to establish a solid foundation from the start of a student's education are described in the introduction of *Young Strings in Action* (Rolland, revision by Sheila Johnson, 1985). Discussions of the parent-teacher-pupil relationship, the environment where the learning process take places, and some procedures to establish goals and tools for teachers, can be found among the above-mentioned elements. Suzuki in his Mother Tongue Method also emphasises the first two of these elements (Suzuki, 1969, and Collier, 1985, pp.18-41).

The environment

The physical space where the lesson takes place can affect teachers' work. This is why the environment should be pleasant and, for group lessons, with space enough for the teacher to circulate among the students freely. Students will preferably be standing up, playing the repertoire from memory so that they can minimize distractions and focus both on the music and the teacher's instructions. The students' motivation is mainly the teacher's responsibility. Therefore they must learn how to use aversive and reinforcing stimuli in a sensible way, that is, those actions that inhibit or encourage certain attitudes and performances in students. In order to keep students highly motivated it is advisable to reinforce correct behaviour as well as to use criticism tactfully and in a positive environment.

The parent-teacher-student relationship

As in Suzuki's case, Rolland relates success in string teaching to the type of relationship established between parents, teachers and pupils. A solid and fluent relationship among those elements is needed if the process is to be effective. The importance of positive parental support is stressed in *Young Strings in Action* (Johnson, 1985). For this reason, several types of parents are identified according to their attitude to both music and their own children. It is emphasized that one of the first priorities for the teacher is to lead this relationship toward mutual cooperation, trust and understanding. Five types of parents are described, namely: dominant, suspicious, ambitious, uninvolved and cooperative, although Rolland claims that

most parents show to a greater or lesser extent all these characteristics. The most complex scenarios take place when one of these characteristics is present in excess. It is then that the teacher must detect this situation at the beginning of the relationship with the parent, so that both can work in a cooperative way.

Goals

It is important to start the learning-teaching process by establishing the goals that the student is expected to achieve. By doing so confusion and dejection can be avoided. Rolland believed that establishing goals is a process that requires a quick mental evaluation including the following steps (Johnson, 1985):

- Identification of goals. They will be the targets to achieve. It is important to check regularly that they are the right goals.
- Define those procedures and tools needed to achieve the goals.
- Isolate and demonstrate the aforementioned tools
- Student guidance and assessment
- Check whether the achieved goals are those previously established.

This process is cyclical. After the final evaluation the teacher will determine whether it is necessary to reformulate the initial goals in order to achieve those that have not been accomplished or if it is better to establish new ones that allow the student to keep making progress.

Principles of the movement

Some of the more striking issues that can be observed in the recordings (Rolland, 1974) are fluent movements, coordination, flexibility and balance as shown by the children at their performances. Rolland claims that after studying for two-and-a-half years, students show musical and technical resources that traditionally are acquired after a much longer period of time. These achievements include vibrato, ricochet, spiccato and shifting movements in addition to a high quality tone and intonation.

Rolland considered balance and movements free of static tension essential elements in the production of a beautiful tone. Virtuosi demonstrate correct use of the innate mechanisms related with the control and voluntary regulation of movements. Through appropriate training students can acquire tools that allow them to control those movements more easily. This process of motor skills acquisition includes two

stages: The first is knowledge-acquisition, where students have to understand both the goals that they must achieve and the procedures that they must follow. The second stage is practice, which consists of assimilating and automating those skills, making them go from the conscious to the unconscious.

Rolland argues that teachers constantly use two teaching channels in particular. On the one hand, the 'developmental channel' implies that students should persist in consolidating those materials already learnt before moving onto a new element. Thus, Rolland makes positive reference to the Suzuki method, which insists on reviews and the refinement of skills that have already been acquired. On the other hand, the 'preventative channel' is related to corrections of old bad habits. In this case, Rolland recommends similar exercises to be played away from the instrument in order to avoid the repetition of wrong patterns. By this method of practice the student will be more aware of himself, feeling and visualizing the effective movement (Rolland, 1974).

Pulse and rhythm

One of the video recordings from the 'Illinois String Project' is entirely dedicated to rhythm training (Rolland, 1974). In it Rolland claims that acquiring a good rhythmical sense is the foundation for well-controlled movements. Without this sense, movements are disorganised and confused.

Rhythm training starts by developing the sense of pulse, which is considered by Rolland as essential in order to perform diverse rhythms precisely. One of the teacher's priorities is to get the student to associate rhythm and action. In the recordings children perform rhythms in several ways, including clapping, stamping on the floor, playing drums, plucking the open strings with both hands, using the bow on the left shoulder, also on an open string, using a simple melody or even playing rhythms printed in flash cards. Those rhythms include simple values such as crotchets, quavers and semiquavers as well as the corresponding rests and some more complex combinations. Recordings show several possible applications to string teaching where children perform the pulse and the rhythm of diverse pieces, both in group lessons and by themselves.

Rehabilitation

Frequently, string teachers have to correct bad habits and wrong movements acquired by their students and this is usually called the rehabilitation process. In this process it is important for students to be aware of the habits that must be modified so

they will be more receptive to the instructions given by the teacher and will be able to identify both errors and achievements. When talking about rehabilitation Rolland also mentions motivation and types of practice - issues that will be developed in other sections of this dissertation.

Students usually associate rehabilitation with stopping any progress and also with negative feelings including frustration, disappointment, apathy and despair. In this situation, the student's motivation plays an essential role in the rehabilitation process and the teacher can creatively encourage the student to maintain a positive attitude while pursuing the established goals.

Regarding types of practice, Rolland emphasizes how helpful imagination, miming and manipulation can be when trying to teach new habits and movements to the students. Images and examples are more effective with younger children as opposed to explanations. Through imagination, patterns and skills can be visualized whilst they are kinaesthetically felt. Further, miming helps to reinforce skills although it is important for the student to try them with the instrument before imagining and miming. Finally, teachers can transmit sensations using the kinaesthetic channel thus avoiding unnecessary explanations.

Repertoire: technique and musicality

Like Suzuki, Rolland uses pieces specially conceived to sequence technical progress. Every piece focuses on a very specific aspect related to what the student has been introduced before as well as to the elements that will be taught in the following pieces. The essence of every technique needed to play the violin is introduced early so that students can learn advanced technical skills from the first stages of the learning process. This includes aspects such as shifting and vibrato or more advanced bow strokes such as ricochet or spiccato. Students continuously work on several techniques simultaneously.

Rolland requests special awareness of the central fingers (2^{nd} and 3^{rd}) of the left hand, so that the balance of the hand is enhanced and intonation improves. Therefore, the first interval to be learned is the octave with an open string and the third finger. This not only facilitates the good shaping of the hand but also improves intonation as performers have the reference of the open string.

Other technical innovations of the project include 'flying pizzicato', 'tapping' and the early use of harmonics. The aim of these exercises is to enhance fluency of movement as well as body balance. The flying pizzicato is played by the right hand, which mimics a wide circle on the air after plucking the string. This movement is a good preparation for long-bow strokes and it is related to other techniques such as

retakes and down-bow chords. Tapping the collarbone, the fingerboard or the box of the violin with the left fingers is an excellent preparation for vibrato. It also helps to eliminate tension in the left wrist and arm. Finally, natural harmonics are intended to prepare shifting and to promote movement fluency, both in the left and the bow hand's fingers.

One of the innovations of the University of Illinois String Project is that pieces in the repertoire are particularly rich from the point of view of musicality. This is not usually the norm in other methods for beginners. The pieces cover a wide variety of styles and include a great diversity of rhythms, time signatures, intervals, key signatures and harmonies.

Teaching material

Teaching material includes books with pieces and exercises, guides for teachers, video recordings and other resources such as tapes and posters (although the last two are currently unavailable (2012)). Most of this material is described in Rolland (1974), and includes the following items:

- Teaching of action in string playing (seventeen video recordings).
- Action studies (posters to hang from the wall at the music studio showing the main technical actions to be taught to the students as well as the procedures).
- Action studies (pupils' book).
- Teaching of action in string playing (teachers' book).
- Tunes and exercises for the string player (for violin, viola and cello. Tapes with exercises were also available).
- New tunes for strings (two volumes). Pieces composed by Stanley Fletcher. Piano accompaniments are also available in a separate teacher's book.
- Young strings in action. Reviewed by Sheila Johnson (1985). Includes numerous practical exercises based on Rolland's principles.

As a result of the research carried out by Rolland and his team of collaborators seventeen video recordings were filmed showing the main principles illustrated in the project. After an initial chapter where the endeavour is introduced, sixteen more recordings address the following subjects: principles of the movement, rhythm

training, violin and bow hold, bow strokes, vibrato, shifting, finger action in the left hand and rehabilitation. Recordings about rehabilitation have been included because of Rolland's emphasis on establishing a good foundation from the first stages of the learning process (Fanelli, 2001).

Zweig's pedagogy

Mimi Zweig's pedagogy is the most eclectic approach among those discussed in this dissertation. Her ideas combine elements from Suzuki, Rolland and Kodaly pedagogies among others. The influence of Rolland's analysis of movement related to violin playing, as a way to create a solid foundation for the first stages of the learning/teaching process, is especially remarkable. During the observations that took place as part of the experimental studies for this dissertation, her students showed high levels of self-control when performing from memory in all sorts of contexts. They also showed an intrinsic motivation to practice and perform.

Mimi Zweig has become one of the most prestigious violin teachers of modern times. Talented violinists from all around the World go to Bloomington to study at the Indiana University where Zweig is the director of the String Academy (within the Jacobs School of Music). A product of several influences as well as her own ideas, Zweig's pedagogy has proved to be a successful way to offer children a solid foundation and give them the possibility of making the most of their talent. This is evident from the numerous professional performers, high-profile teachers and well-known artists that have studied under her pedagogy. Zweig has reputedly exerted enormous influence on violin teachers through her many clinics and retreats on string pedagogy, the pedagogy lessons at the Indiana University, her website and a DVD (Zweig, 2007) that includes all her principles as well as numerous resources for teachers.

In spite of the strong impact of her teaching on generations of violin students, studies of her pedagogy are almost non-existent. Current literature includes a short dissertation written by an undergraduate student (Aldridge, 1991) and some articles - mostly on the internet. These mostly reproduce information that can also be found in the handbook of the String Academy and on her DVD (Zweig, 2007). Two more sources have been used in this research. First, an interview that Zweig agreed to give to me in Bloomington in April 2010 (see appendix A1) and, second, the material obtained at the 'Retreat for Professional violinists and violists' that I attended in June/July 2003, also in Bloomington. This material includes much information on the structure of the programme as well as some lists of extra repertoire both for solos

and group lessons. Also included are studies and exercises for each level and references to other pedagogies that have had an influence on Zweig's programme. In the next paragraphs I describe the origin of Zweig's ideas as well as the structure of her programme.

Origin and influences

In 1976, Mimi Zweig was a young qualified violinist with little teaching experience. She was asked to create a string programme at the Indiana University in Bloomington, which she did with an initial six students. Betty Haag, a successful teacher from Chicago, went to Bloomington with her students to perform a concert and this impressed the young Zweig very deeply. She saw in the technique and playing of Haag's students a reference for her own work and later visited Haag in Chicago and observed her lessons. Zweig claims to have been strongly influenced by teachers and performers whom she met in her first years at Bloomington and that she considers exceptional professionals and human beings:

> My education was my model… Striving for excellence in terms of musical beauty and in terms of technical security: playing in tune with a beautiful tone, and rhythmically. Also, the model of human excellence, of sensitivity and encouragement and of passion for what we do. I can say that that has come from my teachers… all of the people around me when I came to Bloomington. (Interview to Zweig. See appendix A1).

Zweig's work also shows the influence of the well-known violinist and pedagogue Ivan Galamian in two ways. First, the syllabus of the String Academy includes some editions of works where he annotated fingerings, bowings as well as also suggesting extra exercises - as in Bach Violin Concerto in A minor (BWV 1041) and the 42 studies by Kreutzer's. Galamian's influence is also present through the scales that all the students are required to practice on a daily basis as an important element of their education.

Other pedagogues and their ideas have also had a deep influence in the development of Zweig's pedagogy. A special emphasis is put on the Suzuki method, as well as Rolland's way of teaching movements and technique and some elements of Kodaly's pedagogy. All the students also follow the Suzuki repertoire, as Zweig considers that it is a very well sequenced selection of pieces. The only book from this repertoire that is not used at the String Academy is book seven, where the edition by Galamian of the Concerto in A minor by Bach (BWV 1041) is utilized instead. Before starting book one, beginners learn the basic skills - such as putting fingers on the

fingerboard and moving the bow - on a set of short pieces that can be found in Zweig (2007).

The syllabus of the String Academy (Zweig, 2007) shows a detailed list of studies and pieces from the traditional repertoire for every level of the Suzuki repertoire. This includes group pieces and contemporary music, as well as scales and double stops. The influence of the Suzuki method can also be observed in other aspects such as parental involvement, the fact that the students perform from memory and listen to the CD with the recordings of the pieces that they are learning. Importance is also given to the environment and how that will affect the development of the child, not only as a violinist but as an individual. Students are also encouraged to base their practice upon the number of repetitions instead of the length of the practice session.

> Learning how to play the violin will acquire skills that will remain in them [the students] for the rest of their lives, whether a child develops into a professional musician or an amateur, the skills of concentration and the joy and love for music will remain forever (Zweig, 2012).

Many techniques from Rolland's pedagogy have also been adopted in Zweig's pedagogy. These include the 'Statue of Liberty', tapping on the high dot, sliding the 'magic X' on the fingerboard, shadow bowing and wiggling the fingers for vibrato (Zweig, 2007). Two main principles also come from Rolland's pedagogy. First, Zweig emphasizes how important it is for violinists to play without unnecessary tension, keeping the body balance, so that their performances will show naturalness, ease and beauty of tone. Second, the sense of rhythm and pulse from the very beginning of the learning process is promoted in the youngest students by encouraging them to involve the whole body and use drums to follow the tempo of a given piece. By such means students associate rhythm with action, as Rolland recommended. Other influences can be observed in the way children learn musicianship and music theory. She draws on Kodaly's use of syllables to teach rhythms, and movable Doh as in English sol-fah. All these influences have been adopted by Zweig to create her own pedagogy that is founded on two principles:

- A non-judgmental attitude.
- A solid foundation.

The String Academy

The String Academy in Bloomington is where Zweig runs her violin project. Currently (2012), the String Academy is part of the Jacobs School of Music, which is

affiliated to Indiana University. The level of the students attending lessons at the Academy ranges from beginners to advanced, their ages being from five to eighteen. The project aims to offer high quality tuition, providing students with tools with which they can fully develop their potential:

> All children are encouraged to strive for their potential. Given the right environment, any child can learn to do anything… [this includes] supportive and actively involved parents, listening to good music from an early age (including the early violin pieces), and good instrumental training (Zweig, 2003).

A total of 110 violinists and forty to fifty cellists are enrolled in the Academy every year. Children do not need to pass any audition in order to be accepted at the String Academy. Instead, their parents are invited to attend an interview where they are informed about the regulations of the Academy as well as what is expected from them. Parents' involvement includes attending three lessons per week, namely, a private lesson with the main teacher, a second private lesson with an assistant (a university student undertaking a pedagogy course) and a group lesson. They are also expected to take notes and to practice with their children on a daily basis, as well as to attend other activities organized by the Academy, such as concerts, master classes and workshops: 'The progress of the child is directly proportionate to the parents' commitment and involvement' (Zweig, 2003).

Initially, private lessons last for thirty minutes and the group lessons for one hour. Group lessons are considered a highly motivational element of the learning process as children socialize with their peers and have the opportunity of playing solos in a supportive environment before they participate in a public performance. Students in a group have are at a similar level but vary in age. Aspects of group sessions include playing together, reviewing technique, theory, aural training, opportunities to play solo and master classes. Private lessons increase in duration to forty-five and sixty minutes as students become more advanced, extending to as much time as is needed and available for the most advanced students. When I observed several lessons of a certain student, the duration varied. Where possible the length and frequency of the lessons is related to the needs of each student, thus enhancing the efficiency of the programme. Group lessons for students in books two to five last for one hour and a half and include ensemble, theory and master classes with emphasis on ear training, note reading and rhythm training. Students in books six and seven also have one and a half hours of group lessons plus one more hour for theory. Above this level students are part of the 'Virtuosi' Group and have one and a half

hours of master class per week along with two hours of ensemble, one hour of theory and chamber music lessons (Zweig, 2012).

Every semester, the most advanced students have three to four weeks of orchestra prior to a concert. Solo recital series also take place every semester, as performance opportunities are an important part of the programme: 'Performing is the just reward for the hard work it takes to get there' (Zweig, 2003).

Competitions are considered an important element in the education of students in the programme as all the previous preparation boosts their technique and skills. For those students who have not started their violin studies at the String Academy but come from other backgrounds, a programme of rehabilitation is set in motion to reinforce the foundations. This rehabilitation starts by checking the way the student holds both the violin and the bow and by reviewing basic bow strokes such as martelé or detaché as well as other movements including shifting exercises and vibrato. Once all the basic technique is polished the teacher looks for an appropriate repertoire that helps the student to consolidate this foundation and continue to make progress.

Havas' New Approach

Kato Havas has made one of the most renowned contributions to violin pedagogy in the twentieth Century, something shown by the fact that she received an O.B.E. for services to music in 2002. The principles of her pedagogy are related to ML and strive for improving performers' awareness of the way the body works when playing. Through this awareness players will avoid unnecessary tension and use leverages as well as muscles appropriately.

Havas' ideas are not designed as a training method for young students. They are instead conceived as a set of tools that improve the performers' relationship with the instrument and their own bodies. This explains why no official teacher training is available. Havas herself does however give a course for performers. This means the number of teachers who apply the New Approach is significantly less than those who base their teaching on the Suzuki method or Rolland's pedagogy.

The Hungarian violinist Kato Havas began violin tuition at her hometown before receiving a bursary to study at the Music Academy in Budapest with Waldbauer (who also taught Paul Rolland). Kato studied with Waldbauer for ten years gave her first professional concert when she was seven, making her debut at Carnegie Hall in New York when she was nineteen. She married a year later and retired from performing

after having her first child in order to take care of her family. In 1960 she moved to the United Kingdom and began teaching.

Havas' pedagogical ideas come from diverse sources. On the one hand Waldbauer's influence in Budapest as well as David Mendoza's in New York are particularly prominent. In the preface of *The Twelve Lessons Course* (1964) she acknowledges their influence in the first stages of the New Approach. Moreover, Havas often makes reference to a Gypsy violinist called Csicso as one of the most influential persons on her ideas. Csicso played at the village where Havas used to spend her summer holidays. In *Stage Fright* (Havas, 1973) she comments how Hungarian violinists can play the most difficult fragments with apparent ease and naturalness. They can obtain a beautiful sound from the instrument, full of nuances and, overall, she is impressed by how easily it is for them to establish a connection with the audience. Among the reasons why they can play like this, believes Havas, is that there is a lack of social pressure on Hungarian violinists. They do not feel the need to be the best player. Instead they simply focus on communicating with the audience and entertaining them. For Havas the glamour surrounding international artists makes non-musicians consider their art as something inaccessible, so that every performer, either amateur or professional, is constantly exposed to uncomfortable comparisons. This frequently provokes frustrations, complexes and anxieties, which have an effect on musicians' performances. On the contrary, Havas claims that nothing in violin playing is difficult: 'it is either easy or impossible' (Klickstein, 2009). The key is to give students the appropriate tools to prevent blockages or unwanted anxieties.

From gypsy violinists Havas adopts the 'giving hand' (the left hand with the palm facing up) and the method of holding the violin on the shoulder so that the scroll aims slightly down. This characterises the New Approach compared to other techniques where the scroll of the violin tends to be more horizontal and the palm of the left hand faces the performer. In *Stage Fright* Havas claims that one of the most frequent fears in violin players is that the violin might drop (Havas, 1973, p. 18). This is the reason why she thinks that most violinists tend to react by applying excessive tension from the head over the chinrest, adopting a rigid position and an excessive inclination of the left arm inwards. The giving hand and the position of the violin are thus intended to promote naturalness and to prevent rigidity.

Consistent with the influence from Csicso, Havas pursues freedom of movement as well as an elimination of unnecessary tensions and stage fright. She analyses in her books the origin of those tensions and fears and proposes what she calls 'cures'. For Havas, these are habits and exercises that help violinists to overcome the sorts

of problems that are so common among instrumentalists, as well as ways to prevent them happening. To gain a better understanding of the principles of the New Approach, Havas' concept of body balance, rhythm, pulse and sound are described in the next paragraphs. To end, a subsection on the way the New Approach can be applied when teaching beginners has also been included.

Balance

Although Rolland already emphasizes the need for balance in violin players, Havas considers it from a triple perspective: physical, mental and spiritual. Havas stresses the concept of 'inside-outside playing' (Havas, 1995, p.19), that is, the need of feeling an internal balance so that music can come out freely. This physical, mental and spiritual balance is analysed in detail by Perkins (1995).

Instrumentalists need to maintain physical balance in order to make their relationship with the violin as natural as possible. Balanced coordination is the foundation for Havas' teaching, she insisting that no forces are needed to play the violin as this usually leads to wrong movements, which in turn produces anxiety. Havas claims that beginners need to be taught 'where the fundamental balances concerning violin playing are and the control and co-ordination of them from the mind' (Havas, 1964, p. 2).

Havas claims that movements involved in violin playing depend on weight adjustments obtained by the right use of leverage in the human body rather than on the mere application of forces by the performer. This system of leverages is explained in detail in *The Twelve Lessons Course* (Havas, 1964), in which she explains her ideas with the support of some drawings and includes a set of exercises to facilitate its appropriated acquisition. One of the main issues that Havas emphasizes is the importance of avoiding vertical forces and movements in the arms, hands and fingers. Violinists tend to press the strings and focus all their attention on the left hand fingertips. Alternatively, Havas recommends performers focus on the base of the left hand joints and she proposes some exercises to learn how to slide the fingers along the fingerboard instead of hitting it vertically. Similar advice is given for the right hand, avoiding concepts such as force or pressure, and replacing vertical with horizontal movements.

In any case, the New Approach is not only a set of techniques to find the physical balance and eliminate tensions. Further, it is a holistic approach showing that all its elements are equally relevant and these include the mental and spiritual balance of the performer. This holistic balance is needed in order to connect audiences and

performers as well as to allow a fluent communication among them. Havas enhances their students' self-esteem, offering them frequent opportunities to meet other students and play in front of an audience. Therefore, she usually teaches two students at the same time, looking for balance between their personalities as well as their strong and weak points. She does, however, always try to avoid competition and rivalry. Master classes and workshops are also appropriate scenarios for the students to meet other students and to boost their self-confidence. In order to enhance mental balance Havas suggests avoiding excessive practice because mechanical repetition usually produces fatigue and leads to obsessive behaviour.

In *Stage Fright* (Havas, 1973) the main fears that affect mental balance in instrumentalists are analysed. These fears mainly make reference to false perceptions and the lack of confidence required to obtain a powerful sound or to perform from memory. These false perceptions make factors such as weight or distance seem different than they actually are. This produces lack of confidence when shifting as well as an excess of strength from the neck, collarbone and jaw when holding the violin. Some other fears are analysed in the same book, including stage fright, fear of being judged or fear of not being good enough.

Rhythm and pulse

Under the influence of Kodaly, who was another influential Hungarian pedagogue, rhythm and pulse are considered fundamental by Havas. She asks her students to clap the pulse of a piece while singing the melody that they want to learn by saying the name of the notes. This means students develop musicality without the difficulty of facing technical problems on the instrument. Afterwards, they are asked to mime the movements implied in the physical performance, pretending that they are holding the instrument. Simultaneously, they must keep singing the name of the notes. Once students take the instrument to play on it, Havas asks them to say the name of the notes without intoning the melody before then introducing the concept of 'no-violin' and 'no-bow'. This idea of forgetting that they have a violin and a bow in their hands is used to remind her students of the free sensations they had on the second step, when they simply were miming the movements, avoiding unnecessary tensions.

Sound

Havas believes that obtaining a beautiful sound does not depend on a performers' talent or sensitivity, but on performing the right action on the instrument. Some

references to this issue can be found in *A New Approach to Violin Playing* (Havas, 1961):

> If one can achieve the ideal poetry of sound once, by lucky accident, why not always by deliberate design? (Havas, 1961, p.1).
> A warm and beautiful tone has nothing to do with talent or individual personality... It is merely putting the right pressure on the right spot at the right moment (Havas, 1961, p. 4).

Havas stresses that the priority for any performer is to obtain a beautiful tone - looking for quality instead of quantity. This beautiful tone must be taught to children from the first stages of the learning process by giving them the right tools so that they can obtain it consciously. Chapter seven in *A New Approach to Violin Playing* (Havas, 1961) is entirely addressed to tone production and how the good tone can be taught to students: A beautiful sound can be taught from the beginning. In order to do so, it is interesting to start lessons by playing open strings, as it is not only a good warm up but allows the teacher to discover deficiencies of sound easily as well as be able to check if the student has practised appropriately since the last lesson. Unlike Rolland, and since for Havas physical movements are just a tool to reach intended outcomes, she encourages teachers to focus on the quality of their students' tone instead on the movements that they might have performed badly. Teachers should play examples with their students' violins, so they can realize that it is possible to obtain a good tone with that instrument.

Besides these ideas on tone production, chapter seven addresses other recommendations to be considered at the lessons. These include ensuring students keep focused on the task that they are performing. Havas recommends that the teacher stops whenever the student meets a problem and to spend some minutes thinking about its origins and how it can be sorted out. It is also interesting for the student to note teachers' instructions down in a notebook so that they can be easily recalled and private practice will be more effective. Motivation is also addressed by Havas as she claims that one of the teachers' main duties is to maintain students' excitement and self-esteem, adopting a positive attitude and avoiding negative instructions. Finally, Havas states that teachers must be patient and tactful with students who are professionals already. If the students trust in the benefits of the New Approach they will gradually modify the way they perform as well as their relationship with the instrument.

Teaching beginners

Havas claims that The New Approach is not a method to learn how to play the violin. However, in her books she occasionally refers to the initial stages of the learning process. In *The Twelve Lessons Course* (Havas, 1964) she states that any performer, independently of his or her age or level, can practise the exercises.

Gloria Bakhshayesh, a violin teacher specialising in The New Approach and currently (2010) Kato Havas' personal representative, has published two books for children as well as a handbook for teachers. *Dancing Bows* (Bakhshayesh, 1985) is the consequence of many years of experience using The New Approach with children aged seven to ten in British schools. The aim of the material included in the book is to help children to prevent physical mental and emotional tensions as far as possible. Bakhshayesh includes new and old elements in all lessons in order to consolidate what has already been learned and to keep children appropriately motivated. She focuses the learning process on the student and proposes exercises with no instrument based on Kodaly's ideas. This includes physical and aural work as well as singing. The encouragement to sing while clapping the pulse will also allow students to feel the music that they are going to play. Pizzicato is introduced to children before they start using the bow in order that they can start playing simple melodies from the beginning.

Particularly interesting is the suggestion of including two children per session so they can learn from each other. Children are asked questions so they can think by themselves as well as look for solutions together. Finally, Bakhsahyesh emphasizes the importance of it creating a positive atmosphere as it enhances the pleasure of playing music.

In 1991, Bakhsahyesh published a second book: *Ringing Strings*, that includes a handbook for teachers, where she insists on some of the principles introduced in the first book. *Ringing Strings* can be used in both small and large groups as well as in private lessons.

Conclusion to chapter three

In this chapter I have looked for connections between all pedagogies claimed by those teachers who have participated in the experimental studies and motor learning principles. Terms such as balance, leverage, tension, memory and motivation as well as references to the way teachers should structure the lessons and send instructions to their students are usually mentioned in the literature related to these pedagogies. However, Paul Rolland is the only one who claims to base his ideas on formal research. Besides, teachers seem to be unaware of the research that underpins their practices. Connections between the pedagogies of Suzuki, Rolland, Zweig and Havas with the field of Motor Learning are exposed in the next paragraphs.

Suzuki teachers received systematic training that covers a wide range of skills and knowledge. This includes how to work with young children, how to send instructions effectively, how to keep students' level of motivation at a high level, how to enhance their memory skills, how to teach technique, how to involve students' parents in the learning process, etc. Some of these aspects (memory, motivation and the procedures to send information and instructions effectively) have been analysed in previous sections of this dissertation as part of the knowledge included in literature about ML. However, I also need to consider other methods to shed further light on current applications of ML principles, beginning with Rolland.

Some aspects of violin pedagogy such as parental involvement, performing from memory, postponing music reading until a certain level of proficiency in playing has been reached and combination of group and private tuition are traditionally related to the Suzuki method and similar ideas can be found in Paul Rolland's pedagogy. In addition, Rolland's interest in how the human body works led him to analyse those motor skills involved in string playing. Consciously or unconsciously some procedures and principles from the Suzuki method are consistent with those of ML described in this thesis, such as the emphasis on repetition, the fact the students are encouraged and trained to enhance their memory skills, and the use of modelling, guiding, oral instructions and imagined practice by teachers, with an special emphasis on repetition.

Since Zweig's pedagogy is influenced by Rolland and Suzuki, among others, most of their characteristics can also be observed here. Zweig teachers not only use the Suzuki repertoire and its recordings, but also involve parents who attend the lessons and support their children's home rehearsals. Students are encouraged to perform from memory and their motivation is considered both at the private and the group lessons. Rolland's analysis of movements is the main reference to teach technique and his principles for rehabilitation are also applied. Thus, Zweig emphasise the need

of coming back to the basic principles of the technique in order to strengthen students' foundation.

Unlike Suzuki, Rolland or Zweig, Havas' main goal is not to work on beginners but to give performers and teachers tools to improve their body awareness when playing as well as minimising the risk of injuries and stage fright. In her New Approach she addresses issues also considered by ML as well as included and mentioned in this thesis, such as motivation, imagination, leverages, rhythm and balance. The importance of rhythm and pulse is another aspect shared by Havas, Rolland, Zweig and Suzuki. Balance is also emphasised by Rolland, although it is considered by Havas under a triple perspective: physical, mental and spiritual. This mental-physical connection makes the New Approach unique in comparison to the other pedagogies. In spite of all these references to movements, leverages and awareness of the body balance, interestingly Havas recommends teachers to focus on students' tone not on the quality of their movements.

Conclusion to Part 1

Literature reviewed in chapter two shows that a deep understanding of how movements are learned and taught is highly appreciated by professionals such as sport and ballet teachers, as well as those such as physiotherapists whose practice is related to motor control. Since music implies the acquisition of motor skills this is also applicable to music teachers, including violin teachers.

Independently of a teachers' level of awareness, some of the most influential pedagogies originated in the twentieth century show references to ML concepts and principles. This is the case of Suzuki, Rolland, Havas and Zweig, whose pedagogies have been analysed in chapter three. Among them, Rolland stands out for his scientific approach to ML and its connection to the acquisition of motor skills in string teaching. This foundation on ML can also be found in Zweig, as her pedagogy is based on Rolland, among others. The importance given to rhythm, motivation and memory is a common denominator in all the pedagogies considered, although more specific issues are particularly related to some of them. Thus, Havas emphasises the use of imagination to reinforce skill acquisition whilst Zweig, Rolland and Suzuki stress the importance of physical repetition. Besides this presence of ML principles and procedures in violin pedagogies certain questions arise:

1. To what extent are the main principles of these pedagogies based on formal research?

2. Do these theoretical principles correspond to teachers' procedures? And if so, are teachers aware of it?

For the first question, answers differ for each pedagogy. In this respect, only Rolland makes reference to academic literature that supports his research on movements related to string playing. No references have been found proving to what extent either Havas's or Suzuki's ideas are based on formal research. Since Rolland influences Zweig's pedagogy her method is to an extent grounded on the same principles.

The second part of this thesis aims to answer the second question. To this end, the teaching practice of five groups of teachers representing diverse pedagogies has been studied through observational methods, as well as the use of questionnaires. This study has been completed with two interviews – with Havas and Zweig - as recognised exponents of efficient teaching.

Part 2

Empirical studies

Chapter four. Methodology

Part two is divided into eight chapters. Chapter four explains the methodology used when designing and developing the study. Chapters five to ten show an analysis of the data obtained through both lesson-observation and the questionnaires for each group of teachers and their students. Finally, discussions of the outcomes next to some conclusions are included in chapter eleven.

In this chapter - outlining the methodologies I have adopted in my empirical studies - I consider first the criteria I used in the selection of my participants. I then turn to my methods of data selection, closing the chapter with an account of how ethical issues have been addressed and which graphics have been used to show the collected data. Some of the theoretical questions arising from these methodologies will be dealt with in the relevant section where I present and discuss the outcomes.

The pedagogical systems analysed in the first part of this thesis (namely Suzuki, Rolland, Zweig and Havas) show certain similarities and differences both in their approaches and organisation. Conversely, all of them consider concepts related to ML to a greater or lesser extent. Thus, terms such as memory, retention, practice and motivation are frequently mentioned in their literatures. The question arises however whether teachers claiming to use these methods know the meaning of these terms as well as their implication in the teaching practice. This takes us to one of the research questions outlined in the preface of this dissertation; namely, to what extent are violin teachers aware of their teaching habits and procedures? These procedures include the distribution of the lesson time, the use of strategies to enhance skill acquisition in their students, the way they try to keep high levels of motivation and the use of questions as a source of feedback.

The following sub-questions have also been considered when designing the experimental studies:

- To what extent are violin teachers aware of their teaching habits and procedures?
- Which strategies do they use to generate learning in their students?
- How do they distribute the lesson time?
- Is their any formula regarding the distribution of the lesson time that can be related to effective teaching?
- Do they provoke any feedback from the students?

- Is effectiveness influenced by students and teachers' motivation or by the way and frequency that students perform from memory?
- Are teachers aware of their students' level of understanding and their feelings about the violin lessons (e.g. motivation, assimilation of strategies and techniques)?
- How can ML help teachers to be more aware of their practice and how could it enhance their effectiveness?

Samples of teachers and pupils from different backgrounds have been chosen to participate in the empirical studies in order to answer to these sub-questions. Twenty-two teachers from the USA, the UK and Spain have been divided into five groups depending on the pedagogy applied by the teachers. A first group of teachers and their students used the Suzuki method. A second applied Rolland's principles on string pedagogy. Another used the more eclectic approach of Zweig. Teachers who have undertaken formal training in ML comprise the fourth group. The latter's training has included references to other methods and pedagogies from the point of view of ML, such as Rolland's, Suzuki's and Havas' New Approach. Along with the groups of teachers using Suzuki, Rolland and Zweig's ideas and the group who undertook formal training in ML was a fifth group that includes teachers from different backgrounds and with different levels of expertise who have not completed any official training in violin pedagogy.

Three experimental studies have been designed to show the influence of some ML principles on violin pedagogy, namely 'types of practice in violin teaching', 'memory and performance' and 'teachers and pupils views on motivation'. Quantitative and qualitative methods of data collection have been combined in order to show different perspectives of the performance from the perspective of both teachers and students.

Participants in the studies have been selected according to various criteria with the aim of including the views of teachers and pupils with different backgrounds, who work in different contexts and use different methodologies.

Selection of participants: criteria, difficulties and ethical issues

Selection of teachers and pupils participating in this experimental study has taken place according to the following criteria:

- Representation of different pedagogies: Teachers participating in the studies have been divided into five groups. Two of these groups include teachers who follow Rolland and Suzuki's ideas, as their projects have been analyzed in the theoretical section. Apart from these groups, three more categories have been included, as follows:
    - Teachers who apply Mimi Zweig's pedagogy. These teachers follow Rolland's principles when teaching movements and violin skills, as well as the Suzuki repertoire. Zweig's pedagogy also shows influences from other violinists and music pedagogues, such as Galamian and Kodaly.
    - Teachers who have undertaken formal training based on the theoretical frame of this thesis, including ML theories, Rolland's principles of movement, Suzuki repertoire, the New Approach, issues on motivation and the use of memory. I am also included in this group along with some of my students. The other two teachers work at a music conservatoire in Spain and belong to a group of teachers who have attended training courses on ML and violin pedagogy in workshops that I gave to them every term during three consecutive academic years. This training took place from 2007 to 2009, and consisted of 96 hours of theory and teaching practice, over two years and 6 months. In order to minimize any bias, these teachers volunteered to participated in the training as well as in the experimental studies, and they did not received any qualification or mark after completing the training.
    - Teachers who have not undertaken any specific training on violin pedagogy, apart from their degree in performance, and whose ideas come from traditional methods such as the Franco-Belgian and Russian schools. Some of these teachers use strategies from Suzuki and Rolland but have not undertaken formal training in any of these pedagogies. Considering teachers' backgrounds, it could be stated that the group of traditional teachers is the most heterogeneous among those groups included in this dissertation. Not only is their musical education eclectic but also the contexts in which they teach differ. This includes working conditions as well as their students' ages, aims and socio-economic status. The contexts where these teachers

work include different institutions such as conservatoires, private studios and music schools in Spain and the USA.

- Teachers' expertise: In addition to their pedagogical approach, teachers have been selected following criteria of expertise along geographical and institutional representation. Since one of the aims of the research is to look for those factors that are present in successful teachers independently of the method they use and that might be helpful for teachers who teach under diverse circumstances and environments. This research therefore has been carried out in a wide variety of contexts, including conservatoires, universities, music schools and private studios of Spain, the United Kingdom and the United States. It was however not possible for all the groups to have the same representation in all the environments.
- Selection of students depending on their teachers' availability: Initially, teachers showed their availability in terms of dates and times. Afterwards, students attending lessons on those dates were contacted and, interestingly, 100% of them accepted the terms and conditions of the study and agreed to participation. Students' ages spanned four to eighteen years, covering all levels including beginner, intermediate and advanced.
- Not all teachers and students who filled in the questionnaires were available for observation, as reflected in figure 4.1.

	Teachers	Number of Students	Observation	Questionnaires
Zweig	TZ1	6	TZ1P1 to TZ1P6	TZ1P1 to TZ1P5
	TZ2	5	TZ2P1 to TZ1P5	TZ2P1 to TZ1P5
	TZ3	4	TZ3P1 to TZ3P4	TZ3P1 to TZ3P4
	TZ4	0	0	0
	TZ5	0	0	0
Suzuki	TS1	5	TS1P1 to TS1P5	TS1P1 to TS1P5
	TS2	7	TS2P1 to TS2P5	TS2P1 to TS2P7
	TS3	8	TS3P1 to TS3P6	TS3P1 to TS3P8
	TS4	5	TS4P1 to TS4P4	TS4P1 to TS4P5
	TS5	5	TS5P1 to TS5P5	TS5P1 to TS5P5
Motor Learning	TML1	6	TML1P1 to TML1P5	TML1P1 to TML1P56
	TML2	5	TML2P1 to TML2P5	TML2P1 to TML2P5
	TML3	6	TML3P1 to TML3P5	TML3P1 to TML3P6
Rolland	TR1	6	TR1P1 to TR1P5	TR1P1 to TR1P6
	TR2	2	TR2P1 to TR2P2	TR2P1 to TR2P2
	TR3	4	TR3P1 to TR3P4	TR3P1 to TR3P4
	TR4	4	0	TR4P1 to TR4P4
Traditional Method	TTM1	5	TTM1P1 to TTM1P5	TTM1P1 to TTM1P5
	TTM2	4	TTM2P1 to TTM2P4	TTM2P1 to TTM2P4
	TTM3	6	TTM3P1 to TTM3P5	TTM3P1 to TTM3P6
	TTM4	4	TTM4P1 to TTM4P4	TTM4P1 to TTM4P4
	TTM5	6	TTM5P1 to TTM5P5	TTM5P1 to TTM5P6
Top Teachers	TZ1	6	TZ1P1 to TZ1P6	TZ1P1 to TZ1P5
	TS1	5	TS1P1 to TS1P5	TS1P1 to TS1P5
	TS4	5	TS4P1 to TS4P4	TS4P1 to TS4P5
	TTM4	4	TTM4P1 to TTM4P4	TTM4P1 to TTM4P4

Figure 4.1 Sample of participants in the experimental studies.

The Suzuki method has representatives and official teacher training programmes in all the countries considered in the research. However, the Rolland and Havas projects only have training courses in the USA and the UK respectively, making the access to expert teachers more difficult.

Initially, a group of teachers who apply Havas' ideas was considered for this research, although several difficulties eventually meant this was not possible. As I have undertaken formal training on the New Approach with Havas, and because her ideas are partially connected to ML, some of the concepts and principles included in the New Approach have been integrated into the teacher training on ML - which a group of teachers participating in the study have undertaken. Therefore, Havas' ideas are discussed in this dissertation both in the text and in an interview included in appendix A2. Since no relevant research on Mimi Zweig's pedagogy has been found another interview (appendix A1) granted by her has been included as it shows her ideas and the organisation of her string project.

Nevertheless, several teachers who profess to follow the New Approach were asked to participate in the experimental study for this dissertation. Three teachers showed their willingness to cooperate but unforeseen circumstances made it impossible for them to participate in the case study. These circumstances include accidents that left two of them unavailable and the fact that one of them lived in the USA and was not teaching on the two occasions that I travelled to that country to collect data. As I undertook formal training on the New Approach with Havas, I have incorporated some of her principles not only into my own teaching but also into the training undertaken by those teachers included in the ML group who have participated in the experimental studies of this thesis.

The pupils' average age also differs between methods since Zweig's pedagogy is applied to students aged five and above, Rolland's project started with children aged from five to twelve and pupils who start under the Suzuki method usually are three to five years old. The wide range of pupils' ages as well as other restrictions, such as institutional regulations or teachers' criteria, have had an influence on the length of the lessons observed.

All participants were given written information on the conditions and characteristics of the studies. This included details about confidentiality as well as the possibility of cancelling the agreement at any time. Additionally they were asked to sign a form, giving their consent so any data collected could be used for academic purposes. For those students aged under eighteen written authorisation was

requested from one of their parents. A copy of the standard terms and conditions can be found in Appendix B.

A personal code has been assigned to each participant so they cannot be identified by their names. None of the teachers have had access to the answers given to the questionnaires by their students and vice versa.

Methods of data collection

Quantitative and qualitative methods have been chosen to obtain data. These methods include questionnaires, interviews and lesson-observation.

Questionnaires have been used in order to obtain data related to teachers and their pupils' motivation as well as their knowledge and habits regarding the use of memory in music performance. Similar questionnaires were given to teachers and their students, to match their perceptions of the same situation. Additionally, teachers were requested to fill in a third questionnaire with questions covering diverse areas of their teaching procedures including assessment, organization and lesson planning.

Interviews (appendices A1 and A2) offer qualitative data from Zweig and Havas, helping to get a richer picture of their thoughts on violin pedagogy. All the observations as well as the questionnaires and interviews were carried out by the same researcher in order to minimize differences in the explanation of the tasks and the interpretation of the observed facts.

Lesson-observation has been utilized in order to determine teaching habits regarding the way that teachers use different types of practice. All lessons observed took the form of one-to-one tuition, with the length of the lesson spanning thirty to sixty minutes depending on pupils' age, teachers' criteria, and institutional guidelines. When agreed with pupils and teachers lessons have been filmed using a camcorder placed in a discreet position in the classroom in order to avoid any distraction. The observations reflect parameters such as number, length and frequency of teachers' interventions.

Questionnaires

Procedures to collect data from teachers and students include five questionnaires where open and closed questions, leading to both quantitative and qualitative analysis, were used. Copies of these questionnaires (three for teachers and two for students) can be found in the appendices C1 and C2.

Questionnaires on motivation and memory were handed out to both students and teachers with the aim of obtaining data about the procedures used when memorising, as well as their reasons to learn and/or teach music. Some of the questions and answers have been cross-referenced in order that teachers and students' answers on a certain subject can be compared. For example, students were asked about the strategies that their teachers have taught them in order to enhance their memory whilst teachers have been asked about the strategies that they have shown their students in order to enhance their pupil's memory. Additionally, teachers received another questionnaire on general issues related to their teaching practice, for example, on their approach to classroom management and programming.

In the closed questions students and teachers were offered several options where they could choose the most appropriate answer as well as a commitment to that answer, reflected in a one to seven scale. This type of question is a source of data that has been analysed using basic statistics and graphics that can be found in the attached DVD. Open questions have been conceived as a complement for the closed questions so that students and teachers could express their opinion on certain issues more freely.

Initially questionnaires were tested with teachers and students from diverse institutions and nationalities in order to check their clarity, validity and reliability. However, individuals participating in the final study do not belong to any of these institutions. Most questionnaires were given in hand although some were sent by email. In both cases instructions about how to fill the questionnaire were attached. Students aged eight and above were asked to answer the questions by themselves while children under eight were requested to do so under parental assistance in order to clarify any problems that they may find. In this latter case it was specified that adults were not allowed to suggest any answer but just to guarantee their children's understanding of the text.

Observation

Lesson-observation has as its objective the aim of offering a view of teachers' procedures and routines when teaching, especially regarding the way they organise the lesson time and apply the different types of practice previously exposed in this thesis. This includes looking for similarities and differences between expert and novice teachers who use a particular pedagogy, as well as expert teachers whose pedagogical approaches differ. In order to reflect when and how often teachers

aimed to gather feedback from their students, or even try and catch their attention, the number of questions that teachers asked their students was noted down also.

A total of nineteen teachers and eighty-eight students participated in this study. Each participant was allocated a code so that his or her identities were hidden. Teachers' codes are shown bellow ('n' is for a number that is different for every teacher.):

- TZn: Zweig teacher.
- TRn: Rolland teacher.
- TSn: Suzuki teacher.
- TMLn: Motor Learning teacher.
- TTMn: Traditional method teacher.

Student's codes start with the code of their teacher followed by 'P' for pupil and a number, as follows:

- TZnPn: Pupil 'n' who studies with TZn.
- TRnPn: Pupil 'n' who studies with TRn.
- TSnPn: Pupil 'n' who studies with TSn.
- TMLnPn: Pupil 'n' who studies with TMLn.
- TTMnPn: Pupil 'n' who studies with TTMn.

These teachers and their students exhibit a wide variety of contexts, both for the institutions where the lessons take place (conservatoire, private studios and music schools) and the characteristics of the students (age and level). The grouping also prompts questions such as whether the age and the level of the student has an influence on the way instructions are given by the teacher, whether these instructions are longer or more frequent for certain ages and/or levels and whether this also affects the types of practice that teacher use at the lessons. Further questions also include whether the method or pedagogy applied by the teacher is a determiner in the way lessons are conceived and organised. Other factors have also been considered in the formation of the groups including the teachers' level of expertise (determined by the number of years in the teaching profession) and their level of recognition (teachers who have developed successful international careers as opposed to those who are mostly only known locally).

A parent's involvement is another factor that has an impact on the development of the lessons. Some teachers ask questions and give explanations to the parents as

well as to the children, what makes these teachers give longer and more frequent oral instructions compared to other teachers who just focus their attention on the student.

One of the main questions of this research is whether there are any similarities between the most successful teachers that could be instilled in beginner teachers through training. The other main question is to whether the training on ML has had any positive impact in young teachers' teaching procedures and if so, what?

The data utilized in this case study was obtained through lesson-observation. Other researchers have also based their studies on lesson-observation in order to determine those teaching habits related to contents and structure. For example, a study carried out by O'Neill (2003) determined that, on average, Suzuki pupils expend 54% of the lesson time performing actively (O'Neill, 2003). However, O'Neill's study focused on factors related to the type of activities included in the sessions, such as time spent on review, new material, playing for fun and music and non-music talk. This differs from the focus of the present research that is instead related to the strategies that teachers use in order to transmit their instructions effectively and consequently generate learning in their pupils. Events occurring at the lessons have been grouped into seven categories:

- Oral practice: teachers' instructions or comments.
- Physical practice: physical execution of exercises made by the student with and without the instrument including performing pieces, technical exercises, clapping and body balance exercises.
- Guided practice: references originated by the teacher in order to assist the pupil on the accurate execution of a certain movement. This includes any intervention where the teacher physically touches the student or his/her instrument, such as when holding the bow and the pupils' hand to lead the movement and the direction of the bow. Further examples include when the pupil is assisted by any tool, such as the tube used by Rolland to keep the direction of the bow, or the stick on the 'F' of the violin with the same purpose. We have included in this category the use of stickers on the bow or the fingerboard only when they are not a permanent solution but just a transitory reference for a specific purpose or task.
- Modelled practice: examples performed by the teacher, other students or taken from recordings.

- Imagined practice: the pupil is asked to evoke a movement or a performance without a physical execution.
- Practice with metronome: because of the generalized use of the metronome in music practice a separate category for any performance by the pupil with the assistance of a metronome has been included. This could have been considered as modelled practice (as the metronome models the pulse to the performer) or physical practice (as the student physically performs a music fragment whilst being assisted by the metronome). In the analysis of data this practice with metronome has been taken into account next to the physical and guided practice in order to determine the level of the student's activity.
- Questions: asking a question of the student is not only done to check their level of understanding. It is also done to check that they stay alert, are promoting a conscious attitude and a purposeful practice. Questions are a source of feedback for teachers who can adapt their upcoming interventions depending on pupils' answers. When teachers ask more than one question consecutively the total number of questions is specified in the spread sheet next to the total time.

Nevertheless, owing to the complexity of violin instruction and the wide range of different situations that can take place during the lessons, not all of the activities are easily classified in the previous categories. This is especially so when more than one type of practice is used by the teacher simultaneously. The criteria that have been followed to classify the situations observed at the lessons is indicated here:

- As one aim of the study is to show how long the student is active and how long he/she is passive, any situation in which both teacher and pupil play at the same time has been considered physical and not modelled practice.
- Any combination of oral plus any other type of practice has not been considered oral as it implies pupils' involvement or modelled practice.
- The total time that the student is actively performing includes partial times of physical and guided practice plus practice with a metronome.
- Total time that either the teacher or the student is talking includes oral and questions as initially all the questions and the answers have not been included in the oral section but in another category called 'questions'.

- Transitions between activities and any other use of the time, such as interruptions, goodbyes or rewards at the end of the lesson (usually stickers), have been reflected in the total length of the lesson but have not been considered practice.
- Lesson time starts when the teacher welcomes the student.
- The percentage of every type of practice has been considered in relationship to the total length of all the different types of practice as well as the total amount of performances.

Further details on how data from the lesson-observation have been classified and represented can be found in the following paragraphs.

Graphical representation of the data

I have represented my statistical analyses in the form of graphs reflecting the teaching activity of the teachers at every lesson. One graph makes reference to the total practice time, specifying the percentage for every type of activity and another shows the total amount of teachers and students' performances, specifying again the percentage for every type of activity. A further graphic reflects the total time of practice performances in relationship with the total length of the lesson. Additionally, other graphics have been included to compare data obtained when observing different pupils and teachers including:

- On-task vs. off-task behaviour.
- Seconds per performance/task.
- Number of performances/tasks per hour.
- Number of types of practice at each lesson.
- Percentage of the lesson time expended in every type of practice.
- Percentage of the total number of performances/tasks for every type of practice.
- Comparison of all the students of a certain teacher.
- Comparison of all the teachers who use the same method.
- Comparison of all the teachers who use different methods.

- Comparison of all pedagogies/groups of teachers.
- Comparison of a group of top teachers with all the other groups.

All these graphics, as well as a table including all the data, can be found on the attached DVD.

The analysis of the data has been categorised by grouping teachers and students according to their pedagogical approach. Discussion includes comparisons of the data with the characteristics that initially were associated with each pedagogy in the first part of this thesis. Further, comparisons between those teachers with the highest profiles have been included with the aim of searching for teaching patterns that might be related to them independently of the pedagogy that they use. Outcomes of the empirical studies for each group of teachers will be addressed in the following chapters.

Chapter five. Suzuki group

Lesson observation and questionnaires have been used to collect data from teachers and students of the Suzuki group. An analysis of this data can be found in the following paragraphs.

Observation

The group of Suzuki teachers, identified as 'TSn', is comprised of three teachers internationally recognised for their outstanding work. None of the teachers in this group have studied with any of the other teachers and they do not usually observe their lessons. The link between these teachers is that all of them have attended the official Suzuki training course and all of them have more than twenty years of experience.

The percentage of on-task behaviour time is very high in all the teachers in the group - the average being over 80% of the lesson time. Particularly interesting is the case of teacher TS1, as on-behaviour time is over 90% in all his lessons, being the highest average for all the teachers in the case study. Teacher TS1's students attend the lessons with their parents. They arrive some minutes earlier than their lesson time and get both the violin and the bow ready in advance so they start their lessons just after the previous student's. Teacher TS1 creates a quiet and comfortable atmosphere and there is hardly any interference during the lesson. He usually gives short oral instructions while the student is already performing and very rarely asks the student to stop playing in order either to make a comment or to play an example, so off-task behaviour is minimised.

Teachers TS1 and TS2 (both from the USA) show the lowest percentage of oral instruction time at their lessons. Teacher TS1 uses guide practice extensively whilst his oral instructions tend to be numerous but short. The use of guide practice seems to be a habit in Teacher TS1's teaching procedures and not related to the age or level of the student. Students' performances are guided not only by placing marks and stickers on both violin and bow but also the teacher physically touches his students, helping them to perform movements accurately. Teacher TS2's students are advanced players and in his lessons guided practiced is almost non-existent. His oral instructions are frequent, alternating between short (from two to five seconds) and long instructions (generally from thirteen to twenty seconds, although some of them are over 60 seconds).

Since guided practice is usually related to Suzuki teachers, it is interesting to observe how this type of practice is hardly used by teacher TS3, even when she works with young students. Instead one of the characteristics of her teaching is the regular use of the metronome, especially when working on scales but also on pieces. She asks her students to follow the metronome, practicing those fragments that are more difficult at a lower speed so they can play comfortably. Then, the speed is increased gradually until her students can play a tempo, emphasising how important it is to repeat the performance correctly.

Oral performances made by teacher TS3 are more frequent and longer than those made by teachers TS1 and TS2 and so is the average length of these performances compared to any of the other types of practice. She is very precise in her comments and insists that students accurately note down how to practice at home, including information regarding metronomic speeds, fingerings, and procedures. She indicates the number of repetitions and gives accurate references so students can know when aims are accomplished. Teacher TS3 takes notes for every student in her diary, whilst her students take their own notes. Modelled practice and questions are also part of teacher TS3's teaching procedures but with a notable lower presence in comparison to her two other American colleagues.

Teachers TS4 and TS5, who teach at their private studios in the UK, show some differences in relation to their American colleagues. No use of the metronome or imagined practice were observed at the private lessons, although some imagined practice could be observed at group lessons that have not been included in this study. Teacher TS4 is highly systematic in the way she structures lessons as well as in the way she teaches her students how to face new pieces or to work on technical difficulties. The number of activities tackled at the sessions is similar for all the lessons observed, making especial emphasis on body balance and the way the students hold both violin and bow. Teacher TS4's students are aged six or younger and guided practice is included in all the lessons. This teacher tends to keep a balance between all the five types of practice that she uses, namely, oral, physical, guided, modelled and questions. This balance is reflected both in the number of tasks as well as in their length. In contrast, teacher TS5 focused most of the lesson time on oral and physical practice, to the detriment of the other types of practice, which are present but their percentage both in time and number of performances is much lower than oral and physical. It is interesting to observe how this teachers uses just three types of practice in two of the five lessons observed, principally, oral, physical and, to a lesser extent, modelled. The lesson given to student TS5P2 was particularly striking, as this student is aged four - no guided practice was used and

the teacher performed just two examples. Another remarkable aspect of this lesson was the length of both physical performances and oral instructions (average of 77 and 61% respectively), considerably long for a four-year-old child. This is consistent with the fact that the number of tasks per hour is noticeably lower than for the other Suzuki teachers participating in this study.

Successful Suzuki teachers show shorter and more frequent tasks than those in the Zweig's group. This could be due to the younger average age of the Suzuki students involved in this study. However, these habits can be also observed in the lessons of the eldest Suzuki students, so no correspondence between these procedures and the age of the students can be determined in this case. Therefore, this characteristic could be associated with Suzuki teachers. These teachers also are more willing to use guide practice, both manipulating the students and using external references such as stickers or little cushions to keep the little finger on the bow curved.

Questionnaires

A total of five teachers and twenty-nine pupils using the Suzuki method have participated in this study. Teachers are identified as 'TSn' and students as 'TSnPn'. Three of the teachers and their pupils were observed in April 2010 in the USA whilst the observation of the other two teachers and their students took place in the United Kingdom in March 2011. All of them filled in the questionnaires on the same day that they were observed.

Teachers in the USA give their lessons at a music school specialising in the Suzuki method. At this school pupils receive two lessons every week. At the individual lessons they work on repertoire, following the principles of Suzuki. Parents are actively involved, attending the lessons, taking notes and practicing with the children at home. At the group lessons the children work on the Suzuki repertoire as well as on extra pieces either in unison or in several voices plus piano accompaniment. Children always play from memory and the repertoire covers all ages and styles including non-classical pieces and interdisciplinary shows where children play, act, dance and use video-projections. Group lessons generally include children at the same level but not necessarily at the same age, and teachers in charge of the group sessions are not always the same as those who teach the same children privately.

Teachers in the United Kingdom give their lessons at their own private studios. Private sessions are similar to those observed in the USA, following Dr Suzuki's principles, such as active parental involvement, learning pieces from memory and the

use of recordings in order that pupils can listen to the pieces that they are currently learning. Private lessons last from thirty to sixty minutes, depending on a pupil's age and/or level. For group lessons, Suzuki teachers in the UK usually organise a weekly session where several teachers work together. On the same day children are offered other activities such as orchestra, musicianship and chamber music. One of the teachers from UK runs group lessons next to other Suzuki teachers, whilst the other runs her own group lessons just for her students. Children in the same group are usually at different ages though also at the same level. Only the teacher who teaches advanced pupils declared that his students in the same group do not have exactly the same level.

All teachers and children participating in the study live in big cities where a wide variety of cultural activities is on offer. The music school in the USA as well as the private studios in the UK are placed in neighbourhoods with a medium or high economic and socio cultural standard of living. Pupils are frequently given opportunities to perform in front of an audience as well as the chance to meet other pupils and teachers at workshops, concerts and international tours.

Stands are rarely used during the lessons as children mainly play from memory. Teachers are usually sat in front of the students, keeping permanent eye contact, while parents (when attending the sessions) usually stay behind the pupil, taking notes. Parents rarely talk during the lessons but. if so, do so at the beginning and at the end. At his point the teacher usually asks them about the practice done at home and checks that they have understood how to help to their children during the daily practice. The parent's presence is not required at the group lessons although they are allowed to attend and observe, generally assuming a passive role.

All the teachers who have answered the questionnaires have thirty or more years of teaching experience. All have undertaken official Suzuki training and four of them are qualified teacher trainers. The training course in the USA as well as in Europe includes five levels, which cover the principles and philosophy of the Suzuki method, repertoire, teaching points for all the pieces, teaching practice, observation of experienced Suzuki teachers and other topics on children psychology and violin teaching. However, the time required to cover the five levels of instruction differs depending on factors such as the country and institution where the tuition is offered - being necessary in all cases for the candidates to pass exams that certify their level. Similar differences are found in the procedures that teachers must follow in order to become teacher trainers.

Three of the teachers usually teach a wide range of levels and ages. Whilst one of them teaches beginners as well as intermediate level, another teaches just advanced

students. Four of the teachers are active performers, either at amateur orchestras, sporadic gigs, recitals with piano and professional ensembles or orchestras. 100% of the teachers listen to classical music frequently and 80% of them declared that they do so daily.

Pupils answering the questionnaires were aged from four to eighteen and covered a wide range of levels, from beginning to advanced students. They have been studying the violin an average of 7.4 years, with a standard deviation of 4.6 years. Sixteen of the students have studied with just one teacher and the average time that a pupil has studied with his/her present teacher is 4.6 years with just four pupils under one year. This shows that most of the pupils have had a reasonable time to get familiar with their teacher's procedures. This wide range of experience will also be used to show if there is any variation in the relationship between pupils and teachers along the years.

Extra activities include group lessons and orchestra for most of the pupils, with some of them attending regular sessions on music theory, musicianship and a minority attending other subjects such as choir, voice, ear training, harmony, analysis and lessons in other instruments, namely, the piano and recorder. One of the students declared to be teaching violin to beginners. The outcomes of the questionnaires filled in by teachers and pupils are outlined in the next paragraphs.

Teacher questionnaires

Three questionnaires were handed out to the teachers, two of them referring to memory and motivation and a third named ‘general questionnaire’ covering several topics including personal beliefs related to the their profession, teaching habits and organisational and planning issues.

1. Motivation

The questionnaire on motivation covers several aspects: reasons to teach; external factors, such as the relationship with pupils’ parents and other colleagues or the support that teachers receive from their institutions; strategies that teachers use to motivate their pupils and the problems that they usually have to face.

There is a unanimous coincidence on some of the reasons that moved the teachers to come into the teaching profession, including love for children for music and for playing. Answers differ when teachers are asked about the influence of other factors such as salary and the ease of finding a job. However, the teacher who initially gave more importance to the salary and who states that teaching violin was the only job she found, also shows a close affinity with the philosophy and principles

of the Suzuki method and her answers are highly positive when asked about her love for teaching, music and children.

Reasons that teachers have to teach are quite consistent, insisting on love for children and teaching. Other comments make reference to enjoyment of the procedures used during the lessons, positive relationships with colleagues and to personal teaching philosophy. Examples of this include, 'I enjoy giving students problem solving skills, in addition to developing their musical skills' (TS3), 'I love the children, my colleagues and music. I think I also love to teach' (TS4) and 'I am passionate about the power music has to change the World' (TS5). After considering all these answers it can be concluded that Suzuki teachers participating in the study show a strong vocational preference for teaching the violin to children. They show satisfaction regarding their working atmosphere with an emphasis on the positive human relationships - these factors more important for them than salary. These teachers do not consider learning music as a goal in itself but also as an educational tool that can help to transform children's lives.

All the teachers declared they felt strongly supported by their institutions. These include not only the music school for those teachers working in the USA but also local and national Suzuki associations. Some teachers indicated support also from the local associations that organise concerts and other activities that help to keep high levels of motivation in pupils, teachers and parents. All the teachers affirmed that they involve their institutions in the activities they organise, such as concerts and recitals. One of the teachers specified that some of the benefits of this involvement include the better advertising and shared values and knowledge.

Four out of five teachers very frequently meet other colleagues who also teach the same pupils, whilst one of the teachers denied they keep in touch with any other colleague. 100% of them stated they receive support from their pupils' parents, who are highly involved in the teaching-learning process, supervising children's practice at home for the first years until children become independent and usually attend the lessons, receiving frequent updates of their children's progress. Most of the teachers also involve parents in the organisation of extra activities. These include activities such as concerts and workshops. They declared themselves comfortable when meeting parents and also that they feel parents support their work at home as well as at the music studio. Prior to a parents meeting most teachers do some preparation. Thus teacher's procedures are diverse - two of them note some ideas down, another of them declared to think about it whilst two of them do not do any preparation beforehand. Answers are more consistent when asked about the consequences after

parent's meetings as all of them affirmed to get some conclusions. However, none of them claimed to put these ideas in writing.

Suzuki teachers consider a wide range of strategies when motivating their pupils. There is a special emphasis on the social aspect of playing music, where teachers try to involve not only a pupil's parents but also the whole families. 100% of the teachers consider concerts as a motivational tool as well as an opportunity to encourage children and their families to socialise with other peers and families. Thus, some teachers link concerts to other social activities including parties or trips where experiences can be shared and encouraging the feeling of being part of a community. Transmitting values such as perseverance and love for music are stressed by teachers in the questionnaire responses whereas jokes and making fun are considered less so. One of the teachers relates motivation to attainment and this is why one of her first priorities is that her pupils feel that they are progressing and achieving goals: 'Motivation comes with attainment. I try to get my students to play well as quickly as possible' (TS4). 100% of the teachers felt confident in relationship to the effectiveness of the strategies they use. All also perceived a high level of motivation in their pupils and none declared having special difficulties in getting pupils motivated. Just one of the teachers gave a reason why her pupils were not better motivated and this reason was related to their lack of full commitment, saying 'A few are not fully committed. That would be only three or four out of forty-two' (TS3).

When asked about how passionate they are about teaching all the teachers ticked the maximum option unanimously. They enjoy their lessons very much and most of the answers reflected a positive view of their own attitude. They are also passionate when describing their own teaching, choosing the highest options in most of the answers. They see themselves as highly committed, loving, enthusiastic, energetic and demanding. Interestingly, most of them described themselves with adjectives that apparently reflect contradictory concepts, such as peaceful and energetic/passionate or serious and entertaining. The only discrepancies in teachers' answers were shown in the following characteristics, where one of the answers was not consistent with the rest of them:

Entertaining: one teacher declared not to be entertaining.

Serious: one teacher declared not to be serious.

Peaceful: one teacher declared not to be peaceful.

Frustrated: one teacher declared he felt noticeably frustrated.

Teachers' answers were highly consistent regardless of other factors such as the levels they teach, country, institution or gender and none of them reflected any aspect that they would like to change in their personalities when teaching.

2. Memory

Questions in this questionnaire were aimed at discovering teachers' attitudes and habits regarding the use of the memory in music performance. Two main sections were considered, the first related to how often the teachers make their pupils play from memory, either during the lessons or at the exams, public performances or at their daily practice. The second section included questions about the strategies that pupils are taught and the problems that teachers find when working on this issue.

Pupils are asked to play from memory on a general basis. This includes private and group lessons as well as concerts and auditions. In the Suzuki method children do not need to pass any exam. However, there are occasions where they can show their level of proficiency. In the UK, when children complete a book, they can submit a recording to the British Suzuki Institute, playing one of the pieces in the book. After doing so they receive a report with a detailed feedback and participate in what is called the 'graduation concert'. This is meant to be a source of recognition for their achievement. Some teachers also prepare their students for external exams organised by other institutions such as the ABRSM (Associated Board of Royal Schools of Music) or the Trinity-Guildhall. In both cases, 'most pieces, if not all, are played from memory' (TS4).

When asked about the tools that children are given in order to enhance their memory, all teachers stated they give instructions to their pupils. Further, they also confirmed that they regularly check which strategies pupils are applying when memorising a piece. Just one of the teachers answered that she does it sometimes. Interestingly, just two of the teachers gave clues about how they check their pupils understanding of the memorisation process. The teacher who affirmed to check this understanding sometimes also gave an imprecise answer that makes references to the fact of checking that pupils have memorised the piece but not how they did it, saying, 'I listen to the piece' (TS4). When asked about the strategies that they teach their students in order to learn pieces from memory, four answers coincided in 100% of the teachers, namely, listening to the recording, analysing the structure of the piece, dividing the piece into small fragments and playing the piece recreating performance conditions. Listening to the recording is one of the most significant characteristics of the Suzuki method but teachers showed consistency in their teaching naming other strategies that are in their repertoire as well. Two of the

answers referred to reading the music score without the violin and one of them chose answer ‘e’ - imagining they are playing the piece. One of the teachers also made reference to ‘singing’ and another to the repetition that children do during the weekly group lessons, playing' the pieces with others regularly in a weekly group’ (TS4).

Teachers declared themselves to mainly play examples when teaching skills as well as giving explanations. There is a balance between those of them who give short explanations and those who prefer long explanations - checking that pupils have understood what to do. Interestingly, none of them made reference to other strategies that were noticed during the observation of their lessons, such as the use of guided practice or questioning.

3. General questionnaire

A third questionnaire filled in by the teachers included questions about diverse topics, including, principles and values that teachers want to transmit at their lessons, motivation, programme and lesson planning, organization, assessment, control of pupils’ behaviour and external cooperation. Answers to questions linked to motivation and external support have already been included in the previous paragraphs; so the answers for the rest of the topics will be commented below.

Teachers were asked about the reasons why they would recommend someone to learn how to play the violin; the values that they try to transmit at their lessons as well as the procedures that they use. Deep and passionate reasons were given for recommending violin learning focusing on the extra musical aspects such as the intellect. These answers also showed teachers’ strong beliefs that music learning offers every child lifelong values and benefits his or her personal development as a human being. Examples of this attitude include, ‘Because of all the life lessons that can be learned through the study of music’ (TS1), ‘Because I passionately believe in the power of music to enhance the soul of every human being’ (TS5) and ‘Both the musical skills but also the inner discipline development problem solving skills’ (TS3). Further examples include, ‘My daughter tells her daughter we are doing this because it is good for your brain and gives you a beautiful heart (TS4, referring to her daughter as well as her granddaughter, who is also learning how to play the violin with the Suzuki method). Consequently values that these teachers try to transmit in their lessons go in the same direction, with some references to music (‘love for music’, TS4) and the learning of motor skills (‘persistent right repetition leads to exceptional skill and achievement’, TS4) but also a general tendency to highlight values that children can apply in a wide range of situations helping them to enjoy a fruitful life. These values include concentration, honesty, self-esteem, dedication,

integrity, love and self-expression. Strategies used to transmit these values differ between teachers. Some of them try to be a model for their pupils (‘by living it’, TS5). One of the answers reflects the importance of pupils assuming an active role (‘Involving the student in the long process of learning to play the violin’, TS3), while another focuses on Suzuki’s belief that, in the appropriate environment, talent can be developed in every child ‘by helping the child to succeed through "right repetition" and proving that it works. Talent is something that can be developed in anyone’, TS4).

Answers to questions referring to the way that teachers elaborate their syllabuses, plan lessons (as well as other musical activities) every academic year, and establish specific goals for every child are commented on in this and the next paragraphs. It is convenient to emphasize that working conditions are not the same for all the teachers participating in this study. Whilst three of them work at a music school with a clear project in common, the other two work at their private studios, not dependent on any higher structure or person that could determine their lines of action. Two of the teachers working at the music studio have responsibilities as directors with the capacity to take decisions regarding planning, programming and general organisation. These differences in the working conditions are reflected in the of the answers, generating a differentiation between those teachers who work in an academic environment, subject to a syllabus and a common protocol, and those who take their decisions freely and independently. Thus, teachers working at the music school show a deeper awareness of the syllabus, tailoring it to every pupil’s needs and checking as well as updating it frequently, whilst independent teachers did not show any awareness of the syllabus. In spite of adapting in writing the syllabus of their departments teachers at the music school did not show a higher tendency to plan in writing their activities than independent teachers. Indeed, only one of the directors expressed that he plans in writing the activities that he develops in order to reach his goals.

Goals are generally tailored to every pupil. Just one of the teachers stated that she has common goals for all her students but, after contacting her for clarification, she specified that she there are some general principles and aims in her teaching which remain the same for all her students. These include high expectations and playing at a high standard from the first steps. In order to get this high standard she clarified that she certainly adapts her teaching to every child and situation in particular.

The way the teachers manage lesson time seems to be generally efficient. They unanimously assure that they finish all the planned activities on time and this is

consistent with the observation of their lessons. This observation shows how all the Suzuki teachers participating in the study plan clearly the structure of their lessons at the beginning of each session. They usually ask the child or his or her parent about the practice that took place at home as well as about possible difficulties found during the practice time and explaining to the child what the contents of the lesson are going to be. These Suzuki teachers covered all the planned activities in all the lessons observed. However, some of the answers in the questionnaires show a lack of consistency. Further, all the teachers believed that they require more time during the lessons. Provided that timing seemed to be under control in all the observed lessons, and none of the teachers showed any difficulty to cover all the expected points, these answers could be related to a wish to cover more points more than to a feeling of lack of control of the lesson timing.

In order to keep a detailed record of the exercises and pieces that pupils must practice at home all of the pupils have a notebook where homework is noted down. The elder children take notes by themselves whilst the youngest pupils' parents assume this responsibility at every lesson. Four out of five teachers affirmed that they check that notes are taken accurately. The only group who asserted they did not to do this was the teacher whose students are aged three to seven, and in this case their parents always noted the homework down. These answers are consistent with the fact that this teacher is also the only one who does not teach their pupils how to be self-sufficient as they go with other teachers before they start assuming responsibilities. These pupils are strongly dependent on the teacher during the lessons and of their parents during their private practice.

In order to teach pupils and their parents how to practice effectively, the teachers described several strategies, namely: taking notes and a student's video practice session for the teacher to view and parent and pupil practice in front of the teacher. One of the teachers wished to involve parents and pupils in the assessment of each repetition as well as establishing their own goals for the term. For this teacher pupils' responsibilities and involvement start from the very beginning, indeed, 'they carry their violin from the start, and learn to get it ready for the lesson' (TS3). In relationship to the assessment, some lack of consistency can be observed when comparing the answers given by the teachers to the facts that come after observing their lessons. They seem to consider assessment in different ways, although their teaching habits are similar. Three of them stated they assess their students after every lesson, relating assessment with the evaluation of the teaching process that they do at the end of the session. The other two seem to make an assessment with deciding marks as well as informing parents and pupils in writing about their

progress. One of the teachers affirmed she assesses her students after every term, following the guidance of the music school where she works. The other teacher answered 'Not applicable' when asked about the frequency of her assessment, as she is an independent teacher whose students always attend the lessons and practice at home assisted by one of their parents, so she does not need to send the parents any information with comments or marks. However, all the teachers participating in the study showed that they inform the student and the parent (when applicable) about his or her progress after every lesson. They usually remark which aspects must be emphasized during the private practice and also connect the session with the previous one, informing the student about his or her progress. All the teachers who affirmed that they assess their students (four out of five) showed a holistic view of the assessment process, including aspects such as musical expression, technical skills, practice at home and attitude. They indicated that they assess by informing both students and their parents orally. Interestingly, the only teacher who also includes comments in writing is the one that affirmed not to assess her students after every term. The same teachers showed consistency with the principle of motivation that highlights the importance of informing students at the beginning of the teaching process about the criteria that will be followed to do the assessment.

None of the teachers feel they have any problem controlling their student's behaviour as answers to this question were unanimously consistent. Teachers base this control on a clear explanation of the expected behaviour and a firm determination to make their pupils follow these principles. In cases of inappropriate behaviour one of the teachers explains she warns their students first and, if the child persists in his or her disruptive attitude, the lesson can even be stopped. Teacher's answers not only made reference to corrections or consequences for misbehaviour. Two of the teachers accentuate the importance of creating a positive environment in order to encourage their pupils to behave appropriately. Answers include 'been… fun and interesting' (TS4) and 'work the room (includes parents)' as well as 'keep the voice level down (speak normally). Be humorous' (TS5).

Suzuki teachers claim to involve parents in the teaching process. This involvement goes from attending lessons, helping children during the home practice and even participating in the organisation of musical events such as concerts and workshops. Since teachers in this group meet their students' parents at every lesson it is not surprising that they claim to feel comfortable organising parent meetings. Most of them do not consider it necessary to plan these meetings whilst some others prefer

to note some ideas down previous from a meeting. However, all of them claim that they get some conclusions after meeting the parents.

All Suzuki teachers seem to have a positive relationship with their colleagues although their sense of cooperation differs, going from working together at workshops and group lessons to informal chats. They also claim to involve the institution where they work in their activities, especially through the organisation of children concerts.

Student questionnaires

A total of thirty students, identified as 'TSnPn', from five different teachers have participated in this study. Twenty attend their violin lessons at a Suzuki music school in the USA whilst the other ten are taught at private studios in the UK. In spite of this, all the pupils receive a similar musical education. This is not only from a philosophical point of view, as all the teachers follow Dr Suzuki's' principles, but also from the point of view of the subjects and lessons that they attend every week.

All the children have a private lesson per week spanning thirty to sixty minutes depending on their age and level. They also attend a weekly group lesson, which is an essential part of the Suzuki method, as well as other subjects such as orchestra, chamber music or musicianship. Teachers for these subjects are not necessarily the same as the ones for the private session. In the case of the British teachers, they usually work in connection with other local teachers and organise together group lessons once a week. Just one of the British teachers participating in this study declared to run all the sessions for her students by herself, including the group lessons.

At the American school, students can go beyond the last book of the Suzuki method. At this stage, they work on standard repertoire including solo pieces, chamber music and orchestra while following the Suzuki principles. Three of these students attested to not attend group lessons. However, a visit to the school showed that two violin ensembles are offered to the most advanced students, covering classical music as well as other styles. Consistently with the Suzuki principles, it is compulsory for all the British students to attend group lessons independently of their level of playing. These facts are reflected by 90% of students affirming that they attend weekly group lessons. As children grow up they are introduced first to orchestra and, at a higher level, to chamber music, which is consistent with the data obtained through the questionnaires. 60% of the pupils attend orchestra lessons and 20% chamber music. During the first years of tuition most children in the UK attend musicianship lessons (66.66% of beginners) and all of them attend other music

lessons such as recorder at school or piano. A majority of children (83.3%) attend at least two more music lessons a week, apart from the violin, with and average of 2.4% extra musical activities per child. Finally, a minority of children (6.6%) also study harmony and/or analysis.

Socially, all the students in this study live in large cities, with a vibrant cultural life. Their economic status is medium to high and their families usually attend concerts and cultural events of a high level. The location of the American school far from public transport links means the parents must drive their children to the lessons even when they are teenagers. In the UK, children usually go to the lessons by themselves when they are about thirteen years old and above.

86.66% of the Students have been attending violin lessons with their present teachers for more than one year, which implies that they have had time enough to get familiar with their teacher's procedures and teaching habits. Answers in the questionnaire show that these Suzuki students have a tendency to avoid frequent changes of teacher, staying with the same tutor for several years.

All the students participating in this study started violin lessons when they were five or younger. By the time of filling in the questionnaire for this study their ages ranged from four to eighteen, with and average age of 11.5 years. Consequently, since some of the students were too young to understand the questions and to fill in the questionnaires by themselves, all the parents of students under 8 were asked to help their children.

1. Memory

Learning the repertoire from memory is one of the milestones of the Suzuki method as children are asked to learn all the pieces by rote and it is just after some years of practice that they are taught how to read the music. A high number of answers affirming that students play from memory on a general basis should be expected. Therefore, the aim of this analysis is more centred on checking if students are aware of the strategies that they use to learn the repertoire from memory, and if their answers are consistent with those of their teachers. In the next paragraphs, and after analysing student's answers, a comparison with teachers answers to their questionnaires on memory will be included, looking for similarities 'and discrepancies in both, teachers and students' points of view.

When asked how frequently they play from memory, all the students but two affirmed they play from memory at concerts. This implies 93.3% of positive answers. The same percentage affirmed they play from memory at the lessons. These outcomes are consistent with the initial expectations. Analysing the negative answers it is interesting to observe that the only two students who affirm they do not play from memory at concerts are five years old and might not have had the opportunity to play a solo concert yet. Their teacher is in fact a very experienced Suzuki teacher, well known for her discipline applying the Suzuki principles. This teacher affirmed she asks her students to play from memory always, and in fact none of her pupils observed at the lessons did ever read the music score when performing. The first experiences that these young pupils have performing a solo is at the group lessons, where some of them are invited to perform in front of their peers a short piece as a preparatory practice for a proper solo performance in the future. This was also confirmed by the following answer given by one of the pupils when asked how often he/she plays from memory, writing 'Solos in group' (TS5P2). The other two students who affirmed that they do not play from memory at the lessons are advanced students who already covered all the Suzuki books and are nowadays working on pieces from the standard repertoire, including some of the major concertos. Observing the teacher working with advanced students it could be checked how this teacher's procedures include the use of a music stand where the students put the music score and note down teacher's comments. However, it was also observed that students alternated playing from memory and reading from the music score.

Interestingly, only 40% of the students affirmed they play from memory at exams. An explanation to this low figure can be found considering that exams are not considered as part of the Suzuki method and it is only because some teachers, pupils and/or their parents decide to prepare exams at external institutions (such as the 'Associated Board of Royal Schools of Music', youth orchestras or children's schools) that some students have to face auditions or academic exams. The rest of the answers given by the students are in alignment with the emphasis of the Suzuki method on practising and performing from memory. This can be seen from answers to the question 'How often do you play from memory?' for example, 'Always' (TS1P4 and TS1P5), 'All the time' (TS5P4); 'Practising at home' (TS4P3); and 'Practice' (TS3P5).

For the majority of the students learning pieces from memory is not a difficult task. When asked how easy it is to memorise pieces for them, their marks showed an average of 5.59% points in a one to seven scale, where one meant serious difficulties

to memorize and seven that the memorization process is certainly easy for them. Just three students out of thirty showed some difficulties, using marks of three or under. Just the parent of SB3, who was five by the time of the study, did not use any mark, but the following comment, it is 'to early on to really know' (TS5P3) illustrates why this may be the case. This easiness that students show in learning pieces from memory can be related to the variety of strategies that they affirmed to use. When asked about these strategies they were offered 6 possibilities, namely: 'I listen to the recording', 'I analyse the structure of the piece', 'I divide the piece in small fragments', 'I read the music score without the violin (on the bus, at a solitary walk, etc.)', 'I play the whole piece recreating performance conditions (with an informal audience, concert dress, on the stage, etc.)'. Students were also invited to add any other strategy that they use apart from those in the list.

An average of 3 strategies per child shows a high level of awareness of the tools that can make the memorisation process easier. Most of the students (93.3%) chose the option 'I listen to the recording', which is consistent with the Suzuki principle of imitating the mother tongue method by listening to the recording of the pieces on a daily basis. The second preferred option is 'I divide the piece in small fragments', which was selected by 83.3% of the students, whilst the third option is 'I analyse the structure of the piece', chosen by a 50%. It is interesting to observe how 90% of the students went for at least one of the last two options, showing preferences for an analytical approach.

Playing the whole piece recreating performance conditions was selected by 33.3% of the students and 26.7% affirmed that they imagine that they play the piece. This seems consistent with the fact that just one of the teachers indicated in the questionnaire that she includes imagination among the tools that she gives to her students in order to make easier for them the process of memorising pieces. However, two more students from a different teacher also stated they use the same strategy. In the other options, coincidences between teachers and student's answers are also high. 100% of the teachers affirmed they recommend their students listen to the recording, to divide the piece into little fragments and to analyse the structure of the piece. It is in this last issue where outcomes are less consistent, as 100% of teacher's positive answers correspond to just 50% of the student's. Other strategies described by the students include 'mere repetition' (TS5P1 and TS1P2) and 'singing' (TS4P4), as well as other variations of the same ideas described in deeper detail, for example, 'Singing with fingering in car, walking to school, etc.' (TS5P2); 'I play the song with the music several times and then try it without the music' (TS3P4).

The students described numerous situations in which they forgot how to play pieces. Twelve students (40%) made reference to nerves, but there were also other reasons that have been grouped in four more blocks, namely, not practising enough, distractions, elements of the music, and thinking/focusing too hard. Finally, there was a group of students who did not give any specific reason. The second most frequent group was constituted by 8 answers (26.7% of the total number of students) that are related to lack of enough practice. In one case, this was mentioned as the only possible reason to go blank in a public performance, i.e. *Q.* Once you have memorized a piece, which factors can produce gaps in your memory when playing in front of an audience? *A.* 'Very little. Only when it has not been rehearsed for a while' (TS4P4). Distractions include noises, photos, spacing out during performances and dreaming, TS4P1 stating, 'I take things from the real World and imagine them in the piece' (TS4P1). Some elements of the music score can also confuse the students, such as repeats, some fragments that are too similar, fingerings, bowings or notes. Six students (20%) named these options. Interestingly, one of the students (3.3%) expounded that an excess of intellectual activity can lead him to a blockage and consequently to failing when performing from memory, stating that 'thinking too much about individual notes, focusing too hard' (TS2P5) caused him problems. Finally, six students (20%) did not give any specific reason why their memorisation of the piece could be interfered with during a public performance. This includes four students leaving the question blank, one more who affirmed to not be sure what to answer and another one that alludes at the young age of the child and her lack of experiences performing solo to be aware of any problems concerning the memorization of the pieces and the stage fright. She stated, 'This has yet to happen. Very few performances given on the stage' (TS5P1).

Most of the students detailed a wide variety of strategies that they think could be helpful in improving their memorization skills. These strategies not only make reference to increasing the practice and listening times but also to specific ideas to improve the effectiveness when practising as well as other factors such as self-control and memory training through non-musical activities. Comments involving an increased time given to the activity were given by thirteen students (43%). Eleven of them expressed their belief that an increase in the length of the practice time would benefit their capacity to memorize the pieces. One associated the fact of memorising pieces with a greater ease of memorising new pieces in the future whilst another considered it interesting to perform the repertoire in front of an informal audience as a practice that could reduce the possibility of having gaps in the memory during a

public performance. This was illustrated by the response to the question 'How do you think you could improve your memory?' saying 'spending more time playing in front of friends/family for practice' (TS2P7). Eight students (26.7%) stressed the need of listening more to the recordings as a way to fix the pieces in the memory, which is consistent with the questionnaires filled in by their teachers. In the questionnaires, most of the teachers named listening to the recording as one of the recommendations that they give to their students in order to improve their memory skills.

More specific strategies to increase the effectiveness of the practice time through a deeper knowledge of the music score were given by four students (13.3%). According to one of these students analysing the structure of the piece could improve its memorisation. Another would better divide the piece into small fragments and two of them suggested that they should practice more efficiently by paying more attention to details. Three students (10%) described the importance of increasing their level of self-control, either by learning how to release stress though relaxation techniques, getting over the nervousness or focusing more. However, the parent of a young student showed scepticism in getting her daughter to concentrate 100% given her young age.

Interestingly, three students (10%) affirmed they have no problems when trying to learn pieces from memory. One of them never considered this question as she had been memorising the repertoire consistently since she started to learn how to play the violin at an early age, saying 'Because I started playing so young by heart I have never really asked myself that question' (TS4P1). One of the students (3.3%) considered the positive influence that improving his memorisation skills through other non-musical activities could have when trying to learn a musical piece from memory saying it improved his ability to play ' memory card games' (TS4P1). Finally, seven students (23.3%) did not give any explanation to the aforementioned question while three of them did not enumerate any problem that they might have if asked play a piece from memory in front of an audience. The fact of leaving this question in blank could be due either to any difficulty understanding the question or to a lack of problems when performing from memory. This last extent would significantly increase the 10% of students that already stated not to have problems memorising.

2. Motivation

Several issues related to motivation were addressed in this questionnaire. First, questions which focused on children's reasons to start learning how to play the violin as well as the reasons that move them nowadays to keep playing. A second block of questions tried to illustrate the concept that students have of themselves, including the awareness of their own talent and their skills when practising, as well as their fillings at the lessons and performing. Finally, external support was considered in a third block of questions, including the perception that students have of their parents and their teachers' role in their musical education.

Initially, students showed themselves to be highly motivated to study and play music. They gave different reasons why they study music nowadays, with a majority of answers (86.7%) being 'I like music', which is consistent with Susan Hallam's idea, shown in the chapter on motivation, that intrinsic motivation should be instilled in pupils before adolescence. When children started music lessons extrinsic influences had a bigger influence in children's reasons to learn music, being a parent's decision in 60% of the cases, whilst 26.7% of the answers make reference to the fact that friends and/or other members of their families already played and instrument. Just 3.3% stated that they felt the desire of being professional musicians, which is very unusual considering that Suzuki students generally start lessons at a very early age. Other reasons moved three of the students included in this study (a 10% of the total) to start music lessons. Two of them felt an attraction for the violin, either because there was a violin at home or just owing to a natural attraction for the instrument, for example, 'I had a toy violin that played when you touched the strings and I kept bugging my mom about lessons' (TS3P2) and 'I was influenced by the violin' (TS4P1). The third student is a child with special needs and it was her mother who made reference to the benefits that learning how to play the violin could imply to her daughter, saying that music is 'seen as a good learning tool for special needs: for speech, fingers co-ordination, etc.' (TS4P2).

Some changes in the answers can be observed when comparing the reasons given by the students to start music lessons with the ones that move them to keep practising music. External factors seem to have a lesser influence, whilst they show themselves to be more intrinsically motivated than they used to be when they first started violin lessons. Thus, parents' influence is present in a 33.3% of the answers (60% when referring to the beginning of the music tuition). The influence of other friends or relatives playing musical instruments also decreases from 26.67% to 20%.

The only external factor that shows a significant increase in the number of answers is the desire of the students to be professional musicians. This factor influenced just one of the students (3.3% of the answers) to start learning music, whilst its influence increased to 13.3% of the students by the time the questionnaire was filled in. Interestingly, when students were asked about which their relationship with the violin would be in the future, 36.7% of them expressed their desire to be professional musicians, with 26.7% of the students considering become professional performers and 10% music teachers. It is interesting to notice that none of the students consider giving up from playing the violin as an option for their future. Apart from the group of students who would like to be professional musicians, 63.3% of them showed their intention to keep playing music as amateurs, whilst one of the students (3.3%) did not have a clear idea about this because of her young age:

> *Q.* Which do you think your relationship with music is going to be in the future?
>
> *A.* Too early to say (TS4P3).

Some intrinsic motivational factors have been analysed including a student's willingness to play and practice as well as the frequency with which they listen to music. Questions covering these issues could be answered with marks ranging from one to seven, where one indicates strong disagreement and seven strong agreement. Students showed that playing music is a highly enjoyable activity for them, which is reflected by an average mark of 6.2. As could be expected, this enjoyment is not that high when practising, although marks are not significantly low (average of 4.6). Students are frequently exposed to music, being the music that they listen to not classical mainly:

> *Q.* 5. I listen to classical music (one - hardly ever to - seven very frequently)
>
> *A.* Average: 4.7.
>
> *Q.* 6. I listen to any other type of music (one - hardly ever to - seven very frequently)
>
> *A.* Average: 6.1.

Students generally showed themselves to have a high self-concept of their musical talent as well as the way they use their practice time. Average marks where over five in both cases, being the questions as follow:

> *Q.* 10. I think I am good at using my time when practising at home (one – disagree to seven - agree).
>
> *A.* Average mark: 5.1.
>
> *Q.* 11. In comparison to my peers who study music, I feel I am (one - not talented at all to seven - really talented).
>
> *A.* Average mark: 5.4

Students feel a similar level of confidence when playing in front of an audience. In this case they generally feel happy when they have a public performance (average mark: 5.2) and they also feel a high level of self-control (average mark: 5.1). The same feeling of happiness is felt by most of them before every private lesson. 46.7% of them said they feel 'quiet and happy' and another 20% 'excited and very happy. 26.7% of the students have a neutral attitude toward the lessons, feeling 'indifferent', and just a 10% of them showed a certain negative attitude as they said the feel 'worried'. Nevertheless, none of the students declared to feel symptoms of stress or nerves before their lessons.

Students declared they receive a high support from their parents and teachers. Since all of them where aged eighteen or under, it could be assumed that all of them are economically supported by their parents. However, it was 93.3% who confirmed this point. The high level of parental support can also be observed in the fact that 86.7% of the students are driven to lessons by their parents. 63.3% of the parents take their support further by attending the lessons and taking notes. However, it was interesting to observe how not all the parents who attend the lessons help their children with the daily practice at home, as this was confirmed by 56.7% of the students. This could be explained by the fact that American students do not have easy transport links to their teacher's studios and depend on their parents for transport issues, even if they are over thirteen - that is, when most of them are self-sufficient at their daily practice. Other instances of the high support that these students feel is the fact that 83.3% stated that their parents usually praise them and recognise their effort, and 76.7% said they feel that their parents are always willing to listen to them. Just one of the students (3.3%) said that his/her parents never meet

the teacher to keep informed about the progress at the violin lessons. Another student said that his/her parent and teacher meet once a year, whilst the rest of the students (93.3%) affirmed that their parents attend the lessons and meet the teachers regularly.

A high level of satisfaction can be perceived regarding the student-teacher relationship. Teachers' support is also positively perceived by students, as answers to the following question indicate:

Q. 14. My teacher is supportive (one - not at all to seven - very much).

A. Average mark: 6.8.

Finally, students were asked about those particularities of their teachers' character and way of teaching that they like the most. Three students left this question blank and one more answered 'N/A'. All the other students referred to one or two characteristic of their teachers that they like, totalizing fifty-one answers that have been grouped into six topics, namely: motivational issues, teachers' character, teaching style/skills, adaptability, knowledge transferable to other fields/activities and unspecific comments. Eighteen characteristics make references to how teachers increase pupils' motivation, either making the process more enjoyable, empathizing with the student or encouraging them to persevere and reach a high standard. Some appreciate the fact that teachers use games as a teaching tool, turning difficulties into enjoyable activities, saying, for example, that 'Difficult things are turned into games' (TS5P1). Six students appreciated that their teachers had high expectations, encouraging them to get better. This is reflected in comments such as 'She helps me to be very good' (TS4P4), and is 'encouraging' (TS1P3). Thus, two characteristics that initially could be associated with negative connotations are used in a positive way, for example, 'Strict' (TS1P3) and 'He is picky' (TS2P6). One of the students considered as a positive the fact that her teacher does not over praise her, so she knows that the teachers really means what she says, saying 'She doesn't over praise me, so when I get a complement it really means a lot' (TS3P2).

Nine comments are associated with empathy felt by the students, either because of a teacher's support, praise or understanding. Empathy is also shown by helping the student to feel comfortable at the lessons and making her/him feel important, for example, 'He doesn't make me feel nervous or stressed' (TS2P4) and 'She likes me a lot and thinks I am special' (TS5P5). Seven comments in the second group make reference to a teacher's character. The most common comment in this group is 'nice',

chosen by five students. Another student considered her/his teacher fun, one more made reference to his teacher's patience whilst, interestingly, the last comment seems to associate good teaching with a negative quality, for instance, saying he 'teaches me well but is kind about it' (TS3P4). The third group entitles fifteen comments that emphasize the skills and resources that teachers show at the lessons. In this case it is interesting how precise students are in their comments, not only praising their teacher's knowledge in general but also making specific references to techniques and characteristics that are commonly associated with effective teaching such as teaching how to focus during the daily practice, how to be more musical, transmitting instructions accurately, teaching technique and not only notes, encouraging repetition, questioning to provoke conscious learning or showing resources to help students with any difficulty that might happened. Examples of comments include 'He always know the quick "fix it" strategy or technique I can do to help my playing' (TS2P1), he is 'very sequential' (TS3P8) and the 'instructions are clear' (TS5P1). Further comments include '[He offers] good precise directions' (TS3P8) and 'He questions me rather than telling me the answer directly' (TS2P3).

Adaptability is another commonly appreciated characteristic of effective teachers that is shown in comments, students claiming that the teacher 'knows how to help me…' (TS3P5) and the teacher's 'way of teaching works for me' (TS3P1). Further, 'He takes my strengths and weaknesses into account when I play and tells me how to play with them' (TS2P1). Comments in the fifth group show a deeper understanding of the Suzuki philosophy, relating violin teaching to a way of acquiring skills and knowledge transferable to other activities and aspects of life. Comments reflecting that the training can be seen as 'Life skills teaching' (TS4P1) and the fact that it 'applies music to other daily activities analogously' (TS2P5) reflect this sentiment. Finally, four answers are less specific. Three of them show an affinity for teachers and/or the violin. Examples include 'I love my violin school (TS1P2) and 'everything! (TS4P2 and TS43). A fourth response has not got a clear meaning, stating 'He plays things from me (TS1P4). Two students did not know how what to say and filled the question in with 'N/A' and 'I do not know'. Three further students left it blank.

Conclusion to chapter five

In this chapter, I have reported my own research into the practices of Suzuki teachers and their students. Since all Suzuki teachers must undertake a standardised training course they are expected to follow certain principles and

protocols. These include involving the parents in the learning process, teaching the repertoire by rote with the support of recordings and educating children holistically, beyond the acquisition of only certain musical skills. Further, during the training process teachers have to observe other expert teachers, receiving their influence in terms of procedures and teaching strategies. As a result, a wide variety of games, exercises and routines are traditionally associated with Suzuki teachers, even though they are not unique to the Suzuki method but also associated with ML principles. These routines include guiding students' movements either by using external elements (such as stickers, elastic bands or little sticks) and physically manipulating the students so they can feel the sensation of an accurate performance.

The group of Suzuki teachers and students who participated in this experimental study show consistency in some of the elements analysed and related to teaching strategies, memorisation skills and motivation although they also differ in other aspects. One of the strongest trends is related to the on-task behaviour as all the teachers showed a percentage of 80% and above, with one showing the highest percentage among all the teachers investigated. Tasks at the lessons tend to be short and frequent. All the same, Suzuki teachers in this study differ in the variety and proportion of the types of strategies that they use in order to provoke learning. One of the teachers showed a balance between oral, physical, modelled and guided practice whilst the other four teachers showed a preference for a certain strategy. Guided practice is significantly present in two teachers - one showing similar levels of physical and oral practice, whilst two others mainly use oral practice. The use of oral practice tends to be higher with advanced students although it is also high in one of the teachers who mainly teaches beginners and intermediate students.

Since the Suzuki method is based on a well-defined philosophy that considers music as a tool to educate children through love, it is not a surprise that all teachers claim to be intrinsically motivated to teach music to children. Just one of them claimed to feel frustrated when teaching and all affirmed they feel support from colleagues, the music centres where they teach as well as from the Suzuki association. Suzuki students also seem to be highly motivated, the eldest children showing a higher level of intrinsic motivation whereas younger student's decision to play the violin is mainly determined by external influences –such as their parents, siblings or friends. However, a high number of young children declared themselves to enjoy playing music. Students showed a high sense of self in general, both regarding their own talent as well as how efficient they are when practising at home, perceiving that they are highly supported by parents and teachers and they are very specific in

describing this support. They also showed deep awareness of the teaching strategies used by their teachers as well as the benefits of the teaching process, as shown in the high number and variety of responses describing the strong points of their teachers.

Finally, performing from memory does not seem to be an issue for either teachers or students. All teachers claimed to teach their students a wide variety of strategies to enhance their memorisation skills. Playing from memory seems to be a routine for Suzuki students in a wide variety of contexts, including the lessons, the daily home practice, concerts and exams. They know numerous strategies from which to learn pieces from memory. For some of them, the fact of learning pieces from memory seems to be a natural process that have been assimilated from the very beginning of the musical instruction. Therefore they have not even considered either the possibility that their minds could go blank when performing in front of an audience or the need to improve their memorization skills.

Chapter six. Rolland group

Teachers from the Rolland group and their students answered questions on several issues related to their teaching and learning routines, including topics such as motivation, memory, planning and practice. This data, next to those obtained from lesson observation, are analysed in the following paragraphs.

Observation

The three teachers that follow Rolland's principles, identified as 'TRn', are highly experienced and have a similar level of recognition among their colleagues. All of them worked with Rolland himself, learning his pedagogy, although they have been working separately for most of their professional careers. This gives them a similar background in Rolland's pedagogy. However, Paul Rolland died in 1978, and there has since been no formal training or guidance for Rolland teachers until the present teaching group began to promote the so-called Rolland Pedagogy. That their pedagogical practices remain authentic to Rolland's own practice cannot therefore be assured. A first question, however, is whether these teachers are consistent with each other in their practices. As these teachers usually accept new beginners aged eight to ten, the age of the youngest students is higher than for children in the rest of the groups. Although parents attend the lessons in most cases this is just because they have to drive their children. In fact, none of the parents got involved at the lessons or took any notes. Compared to the other groups of teachers their lessons were more intense as reflected by the shorter length of their tasks (average of ten seconds per value) and, consequently, of the high number of tasks that take place per hour (the average is over 300).

All teachers use the "Actions" designed by Rolland to teach their students technique and make them aware of body balance when playing. Since these actions were meant to be used by all string teachers independently of the method they teach, teachers TR1, TR2 and TR3 work at their lessons on different types of pieces, from Suzuki to violin sonatas and concertos, which are part of the traditional repertoire. They also use the pieces that Rolland asked Stanley Fletcher to compose including the actions, as well as some pieces composed by Mary Alice Rich with the same purpose.

Teacher TR1 creates a quiet atmosphere at her lessons. Although she is a very peaceful teacher, she also gives an intense pace to her teaching, with short comments and examples as well as making interruptions rarely. She generally works

on posture, body balance and basic movements while working on pieces. With young students she usually spent some minutes at the beginning of the lesson working on these techniques and concepts before tackling the repertoire.

When teaching advanced students, lessons were more focused on physical practice with and without the metronome. Instead, guided practice was preferably applied to beginners. Modelled practice was used with all the students but the length and number of the examples played by the teacher differed depending on the student's level. As a result, examples were less frequent and longer when teaching beginners. Teacher TR1 applies all seven types of practice proposed in this dissertation. They used a larger number of types of practice per lesson than any other Suzuki or Zweig teacher, including imagined practice and questions to check her student's level of understanding.

Although teacher TR2 is a viola player she has been included in this study for her close relationship to Rolland as she participated in his original project at the University of Illinois. It was here that Rolland developed his ideas and her lessons include actions and repertoire that are suitable for the violin. The two lessons observed included pieces by Stanley Fletcher as well as other pieces by Mary Alice Rich and Rolland's actions were consistently applied to promote good motion patterns free of excessive tension. Teacher TR2 frequently applied modelled practice by performing longer examples than her other two colleagues in this group. Oral, physical, guided and modelled practices were present in both lessons, and teacher performance time (including oral, modelled practice) was longer than the student's (including physical and guided practice). Short questions, between two and five seconds alternated with longer ones that reached twenty-eight seconds.

All of teacher TR3's students participating in this study were teenagers aged sixteen and sixteen. The teacher, who mostly gave oral instructions to her students, played few examples. Priority was given to physical practice, the use of the metronome was occasional, and guide performances, although present at all the lessons, were short in length. Imagined practice was present in just one of the lessons for four seconds and, instead, questions are asked at all the lessons.

Rolland teachers show similar tools to teach technique although they differ in the way they used the different types of practice, as well as the number and length of teachers and student's tasks.

Questionnaires

During the 1960's and the 1970's Paul Rolland presented his ideas on string teaching at numerous workshops and conferences in the USA and other countries. After his death in 1978 some of Rolland's students spread his ideas and some leading teachers such as Mimi Zweig developed their own pedagogy influenced by him. However, there has not been a formal training on Rolland's pedagogy until 2009 when two violin teachers who worked as his assistants started the organization of an annual workshop in the USA covering the main principles of this pedagogy. This situation has been a source of difficulty in finding professional violinists who base their teaching on Rolland's pedagogy. Nevertheless, four of these teachers have been included in this study. Three of them have long teaching experience and had a close relationship with Rolland, as all of them studied violin pedagogy with him and worked as his assistants at the Illinois String Project in the 1970's. The fourth teacher is much younger and less experienced and, although she has been teaching for thirteen years, her contact with Rolland's Pedagogy started in 2009. Since then, she has been studying Rolland's principles and concepts under the guidance of the other three teachers at annual training courses.

Teacher TR2 is a particularly experienced teacher who studied violin pedagogy with Rolland and worked as his assistant at the University of Illinois String Project. She has been applying Rolland's principles since then at her private teaching as well as at string programmes in public schools. Although she is currently teaching viola, the decision to include her in this study is based on several considerations. First, she represents clearly Rolland's pedagogy principles, being one of the very few teachers who has been applying this ideas consistently for the last forty years. Second, those of her students who have participated in this study are beginners who play the same repertoire by Stanley Fletcher as violin students do. The observation of her lessons shows how all the movements and techniques that she teaches are included in Rolland's pedagogy and are also shared by violin and viola teaching.

Teacher questionnaires

Comparing answers given by the three teachers who have been Rolland's assistants (and consequently have a wide experience using his pedagogy) with the answers given by the other teacher who has been applying Rolland's principles for the last three years, it is interesting to observe that they do not show significant differences, either in procedure or in principles and motivation.

1. Motivation

Teachers' and pupils' reasons to teach and to play the violin respectively have been addressed in this questionnaire. Questions on extrinsic and intrinsic motivation include issues such as self-concept, self-esteem and social support as well as a student's perception of their teachers and parents.

Rolland teachers had different reasons to enter into the teaching profession. These reasons include 'love for children and teaching', which is claimed by 100% of them. 75% of the answers make reference to the working conditions, such as salary, timetable and holidays. For one of them, teaching violin was the only work she could find, although it does not seem to be an obstacle in her enjoying her job, as is shown in the following comment about her reasons to keep teaching: 'I enjoy it. I am good at it. It pays better than any other job I could get without going back to school for a different discipline' (TR4). The other three teachers agree in their love of teaching and children as the main reasons to maintain teaching, although they also put an emphasis on other aspects, such as the need to earn a salary. Teacher TR3 seems to have a feeling of gratitude towards music and the violin, as well as the responsibility of transmitting what she has received to the new generations. She reflected: 'I feel the importance of passing on what has been given to me' (TR3). Teacher TR1's reasons to teach the violin include an unusual reference to the intellectual side of the teaching profession, citing an 'intellectual curiosity to solve problems' (TR1). Music is also integrated into their daily lives in a positive way. This is suggested in the high marks given to questions such as 'Do you enjoy playing music?' (Average mark: 6.8), and 'I listen to classical music - one hardly ever - seven everyday' (average mark: 5.3).

Just two of these teachers work at music institutions and they define the support they receive as 'good' and 'very good'. More than once a term they contact other teachers who teach the same students. They also meet their pupils' parents with the same frequency (more than once a term). However, one of the teachers keeps permanent contact with parents, and she is also the only one who invites the youngest pupils' parents to attend the lessons. She commented: 'Once a week (I contact my pupils' parents by email or phone twice week. Just my youngest pupils come to the lessons with their children' (TR1).

Rolland teachers do not usually work with pupils younger than 8 years old. In fact, just one of the teachers participating in this study said they worked with young

children. Parent's involvement is not as intense as in other systems, such as the Suzuki method, where parents attend the lessons and practice with their children at home. During the lessons observed of TR1, parents usually stayed during the whole session and had a chat with the teacher at the beginning and the end. However, just one of the parents, whose child is under ten years old, took notes or declared to practice with her child at home. The fact that parents attended the lessons might also be determined by the fact that lessons took place at the teacher's home, in a residential neighbourhood, with poor transport links. Therefore parents had to drive a long distance, being difficult for them to do any other activity during the lesson time.

The high level of autonomy that students have does not seem to be an obstacle in terms of motivation. For example, when teachers were asked to rate the difficulties they had motivating their pupils, with one standing for 'not at all' and seven for 'certainly yes', they gave an average mark of 1.8. Teachers use different strategies to enhance their student's motivation. Just 50% of them associate the fact of being funny and making jokes with a tool that motivates their students. However, there are other strategies that are used by 100% of the teachers, such as transmitting pupils their love for music and encouraging them to persevere as a way to reach their goals. Interestingly, all of them mention concerts organization, although one teacher claims to not encourage her students to socialize with other peers, in spite of the social component that pupils' concerts entail. Another interesting fact is that 100% of the teachers say that they involve parents and families in the educative process. However, their concept of involvement seems to differ from other groups of teachers since it does not include the supervision of the daily practice or, except for one of the teachers, attendance to the lessons. 'By keeping the parents informed about activities. I only ask parents to take notes when the student is very young' says TR1. Another teacher relates parent's involvement to the organization of concerts and recitals, so that parents can support their children enjoying their performances and can keep informed about their progress as well. Nevertheless, teachers have a high estimation of their student's level of motivation, as the average mark of 6 for the following question suggests: *Q*. 11. Your pupils are highly motivated to attend your lessons (one disagree - seven agree). Teachers' final comments complete the picture of their ideas on motivation. On one hand, the three most experienced teachers make reference to the motivational role of challenges, namely, public performances, auditions for local orchestras or anything that they should practice. Comments made on this subject include: 'If students have something to practice for they would practice' (TR1); 'The students enjoy getting help for solo and ensemble festivals and

chair test for the orchestra at school. Sometimes they have auditions for the junior or senior district orchestra. So they are very motivated to get help for that' (TR2); and 'We all need a reason to practice. Performances are crucial to motivating my students (and myself)' (TR3). On the other hand, the youngest teacher made reference to the power of music as a tool to create a community of players who can socialize with other peers, saying: 'Other motivating strategies are using music as a tool to create a community in the music studio where pupils learn leadership and social skills' (TR4).

All the teachers described themselves as passionate when teaching. It could be considered a consequence of this passion that most of the questions in the questionnaire are answered with extreme marks - generally very high. This is the case of the following question *"Q.* How do you think your pupils see you?" Most of the options where marked with an average of 5.5 or higher, namely, serious, loving, committed, enthusiastic, peaceful, energetic, demanding and adaptable to each individual. The only average mark of 4.5 was for "entertaining", which was marked two and four by both teachers TR3 and TR4. Interestingly, none of these teachers expressed their desire to change the way they are perceived by their students. Only teacher TR1 indicated that they would 'probably like to be more demanding, but I am not sure how to do it' (TR1). Nevertheless, teacher TR1 marked with five the "demanding" option, what in her opinion seems to be not a high enough mark. This indicates that marks of four and five might be equivalent to lower marks for other teachers. 100% of the teachers stated that they enjoy their teaching, although some levels of frustration and boredom emerge from their answers also. 75% of them showed a certain frustration when teaching, teacher TR1 being the one who wrote the highest mark (three). Oddly, it is only the youngest teacher (TR4) who expressed some feeling of boredom when teaching, marking three on this option.

2. Memory

Teachers' habits regarding the way they teach their students how and when to play from memory are not homogeneous. On the one hand deep discrepancies are found in the frequency and sort of situations where their students are asked to memorize a piece. On the other hand teachers' procedures seem to be more standardised regarding the tools that they give their students so that learning from memory is an organized process - consistent with Rolland's principles. They also show uniformity on other issues such as how they check their student's level of

understanding as well as the strategies that they use when trying to learn a piece from memory during their daily practice.

The four teachers seemed to follow very different criteria about when their students must play from memory. Teacher TR1 is the most committed, as her students must play from memory in a great diversity of contexts, including lessons, exams, the daily practice at home and at group lessons. On the contrary, teacher TR2 shows a very different approach as she stated that she just asks her students to learn from memory certain fragments of the pieces occasionally. 'I ask them to memorize parts of the pieces. Some children learn their pieces from memory when they prepare exams, but I do not do it very often' (TR2), she states. The other two teachers take different stances on this issue. Whilst teacher TR4 says that her students play from memory at the lessons as well as at exams, the last teacher (TR3) takes specific decisions for every child, generally depending on the requirements of their student's goals - such as auditions for orchestras or scholarships. She states that 'For one of the scholarship programmes, it is required to play from memory. Same for some competitions. But generally I look at the individual and determine if this is best for him/her' (TR3).

Except teacher TR2, who seems less given to ask her students to play from memory, the other teachers use a rich variety of strategies in order to make easier the memorization process for their students. The way these Rolland teachers check which strategies their students use when learning a piece from memory goes from questioning what is working better for them (TR2) to more specific questions. Such questions work as a sort of a checking list that helps the teacher to discover which strategies the children are using and which are being neglected:

> If they have memory problems I ask them questions such as 'how do you do it', and specifically 'do you see the music on the page', 'do you hear the music in your head' and 'can you physically feel the music'. If they say 'no, I do not see the music' we work on seen the music (TR1).

Besides these questions, teacher TR3 also agrees with teacher TR1 in the sense that she also asks her students about the strategies that they use and invites them to try those strategies in front of her in order to check their effectiveness when practising at home:

> *Q*. Do you check which strategies do your pupils use to memorise pieces? (yes/no).
>
> *A*. yes.

Q. How do you get it? (if you answered 'yes' to the previous question).

A. Discuss and ask students to demonstrate the strategy (TR3).

When asked about the strategies that they ask their students to use when memorizing, all the teachers except teacher TR2 marked all the options suggested in the questionnaire, namely, 'to listen to the recording', 'to analyse the structure of the piece', to divide the piece in small fragments, to read the music score without the violin (on the bus, at a solitary walk, etc.)', 'to imagine that they are playing the piece' and 'to play the whole piece recreating performance conditions (with informal audience, concert dress, on stage, etc.)'. These strategies have been suggested by Rolland and also Suzuki and Havas as well as by experts in all these pedagogies. Teachers were also given the opportunity of adding any other strategy that they might be using. TR3 summarized most of the options that she had previously marked in the questionnaire, also suggesting slow practice:

> Look at the phrase, play with the music, then play without looking. Repeat as needed until the phrase is memorized. Also looking at the music without the instrument. Read it this way slowly, note by note and then 'a tempo' imagining the expression as well (TR3).

Teacher TR4 emphasized the importance of choosing the right repertoire as a student's motivation is linked to their willingness to learn a piece, saying that to 'make sure it is a piece that the student really enjoys. It is easier to memorize a piece when there is an emotional connection to it' (TR4). Teacher TR1, consistent with the depth of most of her answers to the questions in the questionnaire, described the approach that she uses and underlined the convenience of memorizing under different contexts so that students can frequently practice their memorization skills:

> I use a step-by-step approach. That means, first they play one page of the piece memorized for group class, then they play the whole piece without the music for a contest, then the next group class they play two pages of the piece memorized, and when they take a playing exam everything is memorized. At the recital again everything is memorized, so at the end they have many experiences with memory (TR1).

When talking about teaching skills instead of pieces all the Rolland teachers prefer to send the information by playing examples and giving their students a brief

explanation of the new technique. 50% of them also give deep explanations and check pupils' understanding:

> *Q*. 7. When you teach a new technical skill you usually… c. Give your pupils a deep explanation, checking that they understand how the new technique works.
>
> *A.* If needed I check that they understand how the new technique works (TR3).

Addressing the same question, teacher TR1 shows again her systematic procedures giving accurate details of all the steps that she follows when teaching motor skills. Teacher TR4 goes one step beyond this and indicates different solutions depending on each individual as well as the type of activity to be learned:

> It always depends what kind of technique it is—if it's a 'quick fix' like tapping the pinkie on the bow, then I just demonstrate instead of talking. 'Watch me… and now you try it.' Also I take into consideration how the individual pupil learns, because some learn better through demonstration and others through listening to me talk, and others through their own self-discovery. (TR4).

Summarizing, it could be said that the Rolland teacher's answers show that their students play from memory in a wide variety of contexts, but not as frequently as it happens under other pedagogies such as the Suzuki method. However, these teachers use a wide range of strategies both teaching how to memorize pieces and skills. Importantly, their answers show that they are particularly aware of ML principles as well as personal and situational differences.

3. General questionnaire

The different areas covered by the general questionnaire show agreements as well as disagreements in different topics related to the music teaching profession. The main discrepancies can be observed in several cases, particularly recommending someone else why learning how to playing the violin is a positive experience, reasons for teaching, feelings when teaching, time management during

the lessons, assessment and the way they try to control the accuracy of their students' daily practice.

The first question in the questionnaire has divided the Rolland teachers in to groups of opinion: *Q.* 1. Why would you recommend someone to learn how to play the violin? 50% of the teachers have given reasons that make reference to the artistic side of violin playing as well as the personal benefits that students can get from its learning. These benefits include the opportunity of knowing oneself and the fulfilment after the own progress, saying that pupils 'get skills that involve the arts and give them a sense of accomplishment' (TR2) as well as 'is good for them. I think music makes students face who they are, their strengths and their weaknesses much faster than any other activity' (TR1). Interestingly the other 50% of the teachers refused to give any reason why children should learn how to play the violin. One of them usually teaches children who have already taken the decision to learn. The others do not find it appropriate to recommend anybody to begin violin lessons unless there is a previous self-motivation. One example of this view is that it is okay to play if 'they have always wanted to play violin or they like violin or fiddle music, or they want an introduction to how to play music on an instrument. I don't really recommend it to people unless they show a genuine interest' (TR4).

Rolland teachers do not only teach for the sake of the learning the violin. They consider that music lessons offer students the opportunity to develop values and skills as well as the ability to better appreciate beauty. These values include honesty, persistence, respect for others and love for music. However, it is teacher TR4 who gives a detailed list of educative principles as well as a complete explanation of how the violin can be turned into a tool of self-discovery for the individual. Further, TR4 explains how doing so will lead to the accruement of skills that might be transferable to other spheres of life. Teachers use different approaches when trying to transmit these values. 50% of the teachers believe in the influence that they can have in their own students by being models of values and attitudes. One of the teachers uses praises and rewards to reinforce correct behaviours. Teacher TR3 has as a reference her own experience with music and how positive it has been for her to learn how to play the violin. She bases the transmission of such values on her respect for pupils.

It is teacher TR4 – again - who gives the most complete and deep explanation as to the way she tries to transmit values when teaching. Apart from modelling, she listens to her students and supports them whenever they ask for help. Teacher TR4 follows what she calls 'modern psychology methods' to educate and help her students:

Q. How do you try it [values transmission at the lessons]? .

A. By setting a good example in my own behaviour and speech, by listening to pupils, by giving advice when it is solicited, and by making suggestions of new thought patterns or practice methods. I take modern psychology methods and add a much more personal, personable, and connected approach to relating to students (TR4).

50% of the teachers affirm that they adapt the syllabus to each pupil in and 75% review the syllabus periodically in order to update its contents. The only teacher who answered negatively to both questions teaches privately. Therefore she does not depend on any institution or department and, consequently, she is not obliged to elaborate a syllabus. Students are generally informed about the goals that they must achieve, as it is reflected by the 75% of positive answers when teachers were asked about this issue. 75% of the teachers also answered that they tailor their goals and expectations to every student in particular, even for students who are at the same level.

Management of the lesson time does not seem to be a problem for most of the Rolland teachers, 75% of them affirming that they usually finish all programme activities on time. However, two of these teachers also say they usually need more time. This could be seen as a desire to cover more activities at the lessons. One of the teachers expressed her concern for the way she manages the lesson time as she hardly ever finishes all the programmed activities on time.

Most of the teachers (75%) keep records of each pupil's evolution by taking notes in a class diary. 100% of them also help their students to take the most of their daily private practice by asking them to take daily notes of the homework that they must cover between lessons. This is consistent with the fact that all of the teachers affirmed that they teach their students how to be self-sufficient. Also 100% of the teachers specified some strategies that they use in order to enhance their students' self-sufficiency. These strategies include different approaches. For example, teacher TR1 begins by teaching her students how to listen. After this she teaches them to identify mistakes and good performances by modelling the right way to do the exercise or the piece. Finally she ask her students to repeat the piece consistently until the skill is properly understood and assimilated. Teacher TR2 does not give much detail on her procedures but explains that she asks her students if they need help with anything in particular. Teachers TR3 and TR4 are more specific and explain

that they both actively involve their students in the process of learning a new skill. They do so by trying to develop in the students a critical mind. This helps the latter understand how and why they should practice a certain skill, facilitating in them an ability to recognize a correct performance from a mere repetition:

> When demonstrating a particular way to practice a spot, I ask them to look for similar places in the piece where they can apply this way of practicing. After establishing what is good in a spot, I have them do five good once and determine for themselves what is considered good… I find that when they record themselves, it opens their eyes and ears (TR3).

> I ask them to teach me, show me, play for me, or explain the new concept—'What are the ways that we can get dynamics on a violin?' b. I ask leading questions to assess if the student has grasped the concept, and I continue to help lead them to discovering their own version of understanding without demanding that they understand it in my way—'when we want to bounce the bow, where should we place it on the string?' c. I ask them to provide feedback about their performance—"is there anything you would like to improve about that passage? How can you practice that hard lick? What do you think I am going to say about how you played that G-sharp? (TR4).

In spite of this detailed list of resources given by teacher TR4 to her pupils in order to improve their criteria and self-sufficiency, she does not check if the students have noted down the goals that they must achieve by the next lesson. This could be interpreted as a tendency to focus on procedures and contents, obviating medium and long-term goals so that the student could miss a general perspective of the whole learning process.

Assessment seems to be a permanent process for all the teachers, except for teacher TR3 who kept blank all the questions about the assessment procedures. She specifically stated she does not judge, assess, grade or test her students, but does give them a feedback after every session. It can be inferred from this comment that she does not consider giving feedback to her students as a form of assessment. This teacher's conception and procedures differ from the other teacher's. The latter specifying they assess their students periodically, not only after every lesson but also after certain events such as the end of the term or the academic year and concerts. 50% of the teachers also assess after exams, and another 50% after the first lesson. Interestingly, teacher TR4 agrees with teacher TR3 in not judging her students.

However, she disagrees in the sense that she does not consider assessment as a judgemental process in itself, but a way to improve awareness as well as the quality of the daily practice:

> Since I don't work in a school setting I am not obligated to give grades. Every lesson with me is therefore an extended assessment period where I give verbal feedback and ask the pupil to give their own verbal feedback of how they play, how they could play it with more ease, how they could reach their goals, etc. I feel strongly that assessment does not have to be a judgmental, stressful process. Instead it should be a constant part of how we practice music. Assessment means being truthful about how we play, giving ourselves praise when we play well, and constantly thinking about and experimenting with new ways of playing. In this way we can come to find our own way of playing, and we live on a journey of evolution and improvement (TR4).

Those teachers who state that they assess their students include in their appraisals factors such as the musical expression and technical skills. Two out of three also take into account students' home practice as well as their attitude. Teacher TR1 included a comment consistent with the importance that Rolland gave to the global consciousness of the whole body when playing. Teacher TR2, in contrast, made reference to the quality of the sound and the intonation:

> *Q*. What do you assess?
>
> *A*. Posture, how they are standing. I do not think they can be musical expressive if they do not know where they are in space' (TR1).
>
> *A.* Tone and intonation (TR2).

Of the 75% of the teachers who assess their students just 33% use marks. Another 33% include comments in writing by sending a report via email. 100% of these teachers agreed that they inform their pupils and/or their parents orally. However, it is interesting to observe how just 66% of these teachers inform their pupils beforehand about the criteria established for the assessment.

Teachers seem to be confident about controlling possible disruptive behaviours in their pupils. They did not express any particular difficulty about controlling their pupils during the private lessons and their level of concern at the group lessons seems to be very low as it is indicated by their marks. In response to the question: *'Q.* Do you

have problems controlling pupils' behaviour (one to seven) … at the private lesson?', the teachers returned an average mark of 1.8 (three being the highest value). Nonetheless, their approaches differ in the way they try to keep their pupils under control. One prefers to take precautionary measures by establishing rules that help the students know what is allowed and which behaviours are not acceptable. This teacher also trusts in communication with both parents and pupils and the importance of making pupils aware of their own behaviour. In reply to the question: How do you try to keep situations under control?*'* they answered: 'Establishing rules of who can talk when and appropriate behaviour when the instruments are in hands. In private lessons, asking pupils what is causing the behaviour and listening, then formulating a strategy with their help that motivates them to better behaviour. [I also] communicate with parents and the student in person about the incident, and make sure the student understands the consequences of inappropriate behaviour' (TR4). Similarly, teacher TR2 explains how she reacts after a disruptive behaviour has already happened, saying: 'Occasionally I would talk to the child in private' (TR2). Teacher TR1, in contrast, shows a different approach to the same question as she looks at her own procedures and behaviour as a way to provoke positive behaviours from her students. She makes references to the pace of the lesson and her own speech, as well as to the energy that she transmits as factors that can have a direct influence in pupils' behaviours, character and responses: 'I try to channel energy. It has something to do with the speed that I speak, with emphasis in the voice, with how quickly the materials are presented' (TR1). This lack of significant behavioural problems in this group is consistent with teachers' feeling of pupils' high level of motivation. This level is marked with an average of six in a one to seven scale. Teachers gave two types of reasons why this level of motivation is not higher, 50% of the teachers stating, on the one hand, that consider that they believe children are overloaded with school homework and other extra activities. Therefore, they argue, the pupils do not have time to practice and take the most of their violin lessons, which leads to frustration in certain cases:

> *Q*. Why do you think they are not better motivated?
>
> *A*. Because they have so much job to do at school and other after school activities (TR2).
>
> *A.* Some students are just too overextended in their lives. For the ones who do not seem motivated, it is usually because they are involved in too many other activities and do not have enough time to devote to all of their activities. So it's not an issue of motivation but an issue of modern society being

> obsessed with “doing” all the time, to the point that we are not able to concentrate on all the things we are involved in (TR4).

On the other hand, teacher TR1 gave a surprising answer that seems to relate motivation to pushy teachers with strict approaches, rigor and discipline, saying that the lack of motivation was: ‘Because I am too kind’ (TR1).

Rolland teachers participating in this study work mainly at their private studios. This makes their teaching practice a solitary activity and it is rare for them to keep in touch with other teachers or institutions. Only one of the teachers has students under 8 years old, and the average age of the students is higher than in other groups of teachers, namely, Zweig and Suzuki. This makes their students more independent. Further, these teachers are more reluctant to involve parents in their children’s daily practice. Two of these teachers involve parents when students are only very young. Another conceives this involvement as economic, logistic and moral support as well as being an encouragement to practice: In answer to the question: ‘Do you invite parents to get involved in their children's musical process?’ they answered: ‘No, except in being supportive in providing lessons, a quiet place for practice, getting them to performances, encouragement’ (TR3). Only teacher TR4 stated to involve parents actively in their children’s musical education on a general basis, including attending lessons, helping with the daily practice and cooperating in the organization of concerts and workshops. When asking parents to get involved in the learning process, 100% of the teachers ask them to attend the lessons. However, just 50% ask parents to participate actively in the daily practice or to check that children are practicing daily. In regard to the percentage of teachers who ask parents to get involved in the organization of musical events, such as concerts or workshops, the number rises to 75%. Relationships with parents seem to be fluid for all the teachers. 75% of them stated themselves to feel comfortable when meeting parents, and only one indicated they feel a bit tense (although having the situation under control). 75% of the teachers prepare parent meetings beforehand. Of them, one notes some ideas down whilst the other three only think about what they will say. After the meeting, all the teachers stated they reach some conclusions, although only one of them takes these ideas into written form. The teacher who puts her ideas in writing is in both cases the youngest and least experienced. 50% of the teachers indicated they cooperate with other teachers who also teach music to their students. This cooperation is mainly based on the orchestra school programmes, which seem to be a generalized practice at the schools in the area where these Rolland teachers work:

Q. Do you cooperate with other teachers who work with your pupils? If so, how do you do it?

A. Many of my students where recommended by their school orchestra directors; I help them prepare for auditions, solo festivals and other requirements from their orchestra program (TR3).

A. By asking how I can help the pupil with the other teacher's assignments. For instance most of my kids are in orchestras, so I make sure I know what the orchestra teacher wants them to focus on (TR4).

The same two teachers who stated they cooperate with other teachers also declared themselves to involve their institutions in the activities that they organise. For one of the teachers this cooperation is also related to the orchestral programme since the other teacher involves her institution in the organization of concerts with other teachers and students from other studios.

Student questionnaires

The group of sixteen students whose teachers follow Rolland's principles show certain peculiarities in comparison with other groups of students. These peculiarities are related to the specific characteristics of the Rolland pedagogy. Since Rolland's aim was to create a set of tools that could be applied by all teachers independently of their method it is difficult to determine which teachers can be considered representative of this pedagogy and which are merely teachers who use some of its principles. The fact that since Rolland's death in 1978 there has not been a formal training for teachers (until, as explained above, 2009) also makes it more difficult, and the new generation of Rolland teachers have mainly had access to his ideas through his video recordings and books. All teachers participating in this study apply these principles and techniques systematically and three of them studied and/or worked with Rolland himself in the 1970s. One of these teachers, who participated next to Rolland in the video-recordings that demonstrate the principles of the project, is one of the most prominent representatives of the Rolland pedagogy and she has been applying these principles since the late 1970s at school programmes. However, she is currently not teaching violin any more and has chosen to concentrate only on the viola. Her close connection to Rolland and his project, next to the fact that she is the driving force behind the new teacher-training scheme, has been prominent in the

decision to include her and her students in this study. Only two of her students could participate in the study, although they exemplify Rolland's pedagogy by using the adaptation for viola of the pieces composed by Stanley Fletcher upon Rolland's request. After observing their lessons, it could also be observed that they learn the viola technique following the procedures for violin players explained at the video-recordings.

Four of the students studied with a teacher who is younger and less experienced than the other three, and who had learned Rolland's pedagogy undertaking trainings with them. By the time of filling the questionnaires in, she had been applying these tools for three years. The average age of these four students is slightly higher than the rest of the students in the Rolland group. They are also the only ones who do not attend the violin lessons at a private studio as two of them study violin at school and the other two at the university. Those students at the private studios usually have other music lessons at their schools on subjects such as orchestra or chamber music. Some of them are also members of local orchestras. On average, students in the Rolland group attend 1.65 musical activities per week. Most of them play at an orchestra and other activities referred by at least a third of the students include chamber music and piano. One student also mentioned other activities, namely: choir, recorder, viola, harmony, music theory and group lessons. Since both the average age and level of the students in this group is higher than in other groups it may be expected a fewer number of students attending group lessons. However, the Illinois String Research Project created by Rolland was based on group lessons and the fact that just one student claimed to attend group lessons is not consistent with Rolland's project. Nevertheless, Rolland's aim was to create a set of tools that might be applied in different contexts and by teachers who use different methods, including private lessons.

Most Rolland students began learning how to play the violin at a later age than students in the Suzuki and Zweig groups. This is similar to students in the traditional method and ML groups. Participants are sixteen years old on average, spanning ten to twenty-three. They have been learning violin for an average of 9 years although the range is the widest among all the groups. This is due to the fact that one of the students began violin tuition three weeks before he participated in this study and another had already been learning for nineteen years. All but two of the students had previous teachers who did not follow Rolland's pedagogy, although most of them have been studying with their current teacher for at least one year. This allowed them to be familiar with their teaching methods. The average time that students have been

learning with their current teachers is 2.48 years, with three students undertaking tuition for less than one year. Almost a third of the students are beginners, another third advanced and the rest claimed to have an intermediate level. Beginners' ages go from ten to thirteen, which makes their average age higher than other groups of students. This determines both the way parents get involved in their children's musical education and the level of autonomy the students possess.

1. Memory

The questionnaire on memory addresses issues related to students' habits, procedures and their capability in learning pieces from memory. Answers show similarities in the number and types of strategies that students apply when memorising. A first glimpse of these answers show a rich variety of strategies consistent with the principles of Rolland's pedagogy. However, students are less specific when asked to describe the factors that make them have gaps in the memory at a public performance. It is interesting to observe that the main discrepancies take place between the students of the three teachers with higher levels of expertise and those students who attend violin lessons with the younger teacher. These discrepancies are more noticeable in the questions related to the frequency and easiness with which pieces are learned from memory. In this case, the teachers' expertise seems to be a decisive factor related to the students' efficiency when memorising.

As commented in the previous paragraph, students' answers are very different when asked about how frequently they play from memory. This frequency is related to their teachers' level of expertise. On the one hand, 100% of teacher TR4's students, who is the least experienced, claimed that they never play from memory. On the other hand, 100% of the other students in this group, whose teachers are highly experienced in Rolland's pedagogy, claimed that they play from memory at least in some contexts. In the group of students whose teachers are the most experienced, all but one claimed that they perform from memory either in concerts or exams, or even in both. TR1P1 is the only student who did not claim to play from memory at exams or concerts, but has only received three violin lessons, therefore having no experience in any of those situations. Thus, students' answers show that playing from memory is routine for students with expert Rolland teachers and this routine begins from the first stages of the learning process.

Most students consider themselves to have few or no difficulties learning pieces from memory. This ease of memorising pieces is supported by a wide variety of strategies that most students claim to use. However, teacher TR4's students showed some incongruities in their answers. Considering that all of teacher TR4's students claimed that they never play from memory it is interesting to observe how all of them answered the question: 'Which strategies do you use to memorize pieces?' All these students claimed that they listen to recordings and also divide pieces into small fragments as a way to make the memorisation process easier. Student TR4P2's answers were especially remarkable, as she not only stated that it is easy for her to perform from memory but also claimed to use a wide variety of strategies when memorising. This is shown by the fact that she marked all the options she was given, including: 'I listen to the recording'; 'I analyse the structure of the piece'; 'I divide the piece in small fragments'; 'I read the music score without the violin (on the bus, walking, etc.)'; 'I imagine I am playing the piece'; and 'I play the whole piece recreating performance conditions (with informal audience, concert dress, on stage)'. Student TR4P2 also added 'singing' as an additional strategy. These answers seem to be inconsistent for someone who does not claim to play from memory ever. Remarkable differences can be observed between expert teachers' students and those who learn with the youngest teacher. On the one hand, 100% of the youngest teacher's students claim they never play from memory, although it is interesting that they describe how they learn pieces from memory. Nevertheless, just one of these students claims to memorise pieces easily. On the other hand, all of the expert teachers' students showed that they do not have difficulties learning the repertoire from memory (all marks are four or above).

Twenty-one different answers were given by Rolland students when asked about the reasons why they go blank at a public performance. Most answers are similar to those given by students in other groups and make reference to the presence of other people watching them as well as nerves. However, most students referring to nerves did not give any specific details about where these nerves come from. Student TR3P3 mentioned both nerves and the audience although she did not relate nerves to the fact she was playing in front of an audience specifically: 'What can produce gaps in my performance depends on … how nervous I get in front of an audience' (TR3P3). Two students did not give any reason why they might go blank at a public performance. One of them left the response area to this question empty, whilst the other claimed not to have any particular problems performing from memory: 'It never happened to me' (TR1P1). Five more answers referred to other causes, two of them

being related to lack of enough practice: ‘If I am not satisfied with how prepared I am’ (TR3P4); and ‘what can produce gaps in my performance depends on how recent I memorized the piece’ (TR3P3). Two more students claimed that their mistakes can be originated by the temperature of the room or lack of concentration merely, stating memory troubles may occur: ‘If I do not have something to focus on’ (TR2P1) and ‘if it is warm’ (TR3P4). Just one student made reference to the structure of the piece as a factor that might provoke gaps in her memory at a public performance, saying it is possible they may get: which section follows which mixed up (taking a 'wrong turn')’ (TR4P2).

As commented above, most answers make reference to the audience and nerves. The mere presence of other people when performing seems to be enough to provoke gaps in most performers’ memory. Comments regarding this point include: ‘[I may forget] when I am aware that people is looking at me, If there are too many people in the audience’ (TR1P3); ‘If there are lots of people (TR2P1); ‘If I am thinking about people watching me’ (TR3P4); and ‘[If I am] focusing on audience’ (TR4P1). However, some students were more specific as they claimed to feel distracted by noises coming from the audience, stating they may forget because of: ‘Audience noise distraction’ (TR3P1); ‘Noises in the audience’ (TR4P3); ‘Noises’ (TR1P2); and ‘Focusing on audience’ (TR4P1). Student TR1P6 added a physical factor to this list, claiming that sweaty hands make him have gaps in his memory. However, it is not clear if his hands have a natural tendency to sweat or it is because he feels nervous that they sweat as he also express his concern about the presence of other people: ‘Sweating hands, [and] being aware that people are watching me [may make me forget the piece]’ (TR1P6).

Summing up, answers to this questionnaire show differences between students depending on their teachers’ level of expertise. Children who study with the most expert teachers perform from memory more frequently and show less difficulty when memorising. Nerves and distractions coming from the audience are the main factors that make Rolland students have gaps in their memory at a public performance, although some of them also made reference to sweaty hands and the structure of the piece.

In addition to the above information, students made fifteen comments related to the way they could improve their memory skills. They mainly considered repetition as the best way to perform from memory more solidly, although some answers also made reference to other strategies. These included isolating difficult parts in the piece, increasing self-control, listening to recordings more often and even

memorising non-musical subjects. Nine comments claimed that an increase in the number of repetitions would help to consolidate the memorisation of the repertoire. Some of these comments made special reference to the way repetition should be carried out, either dividing the piece in small fragments or performing in a friendly atmosphere so that the performer can get used to an audience. Comments included: 'Playing more the whole piece once I have practice the little fragments' (TR2P1); 'simply doing it more, specially in low-key performance settings (like for friends) to get more accustomed to it' (TR4P2); and 'constantly dividing the piece into fragments and repeating' (TR1P3). One of the students considers that memorising other non-musical issues can help performers to improve their memorisation skills and facilitate the process of memorising music, stating that one can: 'do other memorization things apart from the violin like memorizing a speech' (TR3P4). Three students did not describe any strategy, either because they did not reply to this question or because they considered it not applicable to themselves. Further, two claimed not to have any problem when memorising the repertoire saying: 'It is very easy for me to learn pieces by heart. I never have gaps in my memory' (TR1P5); and 'I memorize music very easily' (TR1P1). A comment made by student TR3P4 is particularly interesting as it emphasised the character and sounds of the piece more than its notes, stating: 'I focus more on how the piece feels and the way it sounds when I play, not what the exact notes are' (TR3P4).

2. Motivation

The set of questions in this questionnaire were aimed at discovering students' reasons about why they are interested in music as well as the way they perceive their parents' and teachers' influence on the learning process. There are two remarkable issues in students' responses. On the one hand they perceived external support as highly positive. On the other hand, most of them were intrinsically motivated to study music. The fact that a high percentage of them showed an interest in becoming professional musicians in the future could be a consequence of this intrinsic motivation. Parents' involvement is mainly related to logistical issues, such as economic support and driving children to the lessons. However, the number of parents taking notes at the lessons and helping with the daily practice is significantly lower than in the other groups of students participating in this case study. The main discrepancies in student's answers are to be found when they describe their attitude before beginning the private lesson. Half of them claimed to have positive feelings whilst the other half claimed to have either neutral or negative feelings.

Initially, half of the students began music lessons because they showed an interest for music. However, there were other reasons that pushed them into music. For a third of the students it was their parents who took the decision and a fifth of the children were influenced by the fact that their relatives or friends were already playing music. Another fifth of the children started their interest on music after having been offered music lessons at school. One of the students claimed that the motivation to start originated after witnessing a violin demonstration. When asked about their reasons to keep studying music by the time of feeling the questionnaire in, children showed an evolution in their motivation. A majority of them (87.5%) claimed to play the violin because they liked it. Another factor that seemed to be more influential is the presence of other friends or relatives playing an instrument, whilst other factors that initially had a stronger influence are considered to a lesser extent, for example, the parents' influence as a reason for playing dropped from 31% to 6%. Interestingly, one of the students who is aged sixteen, is aware of how beneficial playing the violin might be for his academic near future saying it 'can help me to get access to a good college' (TR1P6).

This data might indicate the positive influence that teachers and the environment have had in students acquiring an intrinsic motivation before adolescence. This is particularly interesting considering that the average age when these children started music tuition is significantly higher than the average of the total population of students analysed in this dissertation. Further, the number of parents taking notes at the lessons and helping with the daily practice is also lower. The high interest for music shown by most students is also consistent with the fact that 50% of them claimed their intention to be professional performers or music teachers in the future, which is the highest percentage among all the groups of students participating in this case study. Students also claimed to not only claimed they like music in general. They supported this idea claiming that they particularly enjoyed both playing and practising as well as listening to classical and other types of music frequently. Most of them also have high self-awareness. This includes awareness of their musical talent as well as how efficiently they practice at home.

Students were also asked about how they feel before their private lessons and it was here where their answers show the greatest discrepancies. They were offered five options, namely: 'Stressed and nervous'; 'Worried'; Indifferent'; 'Quiet and happy'; and 'Excited and very happy'. Most students have positive feelings, as shown by more than 50% of them choosing the last two options. 'Indifferent' was chosen by 31% of the students whilst the first two options, which are related to negative

feelings, were chosen by 12% and 6% respectively. Interestingly, all the students who claimed to feel worried before their lessons are over 20 year old and they attend violin lessons at the university with the youngest teacher. This teacher is also the least experienced teacher of Rolland's pedagogy in the group.

Students feel highly supported by both their parents and teachers, although parental support is perceived in a different way by students whose teachers follow different pedagogies or methods. All the students showed awareness of the economic support that their parents provide. In the same way, all students claimed that their parents give them moral support by praising and encouraging them to persist. 80% of the students also claimed that their parents drive them to the lessons. What is consistent with this fact is that all Rolland teachers participating in this study work in cities in the USA where facilities do not always let students go to their music lessons by public transport. Consequently, those of them who cannot drive depend on their parents to attend their lessons. Interestingly, all the students whose parents do not drive them to the lessons are at the legal age to drive a car. 25% of students claimed that their parents take notes at the lessons and actively help at the daily practice, which is a considerably lower figure than the average of the total number of students whose answers have been analysed in this dissertation. Since most parents drive their children to the lessons the former are regularly informed by the teacher about their son's/daughter's progress. However, two students claimed that their parents meet their teacher once a term and another one once a month. Two more students claimed that their parents never meet their teacher, which is consistent with the fact that they are adults who attend violin lessons at the university.

Students' perception of their teachers was reflected through thirty-two comments that have been classified in three categories, namely: Support; Knowledge and Character. Half of the students made eight comments referring to the support that they receive from their teachers. Most comments merely reflect students' perception that their teachers support them, with no specific references to the way such support is given. Examples include 'Support' (TR4P3); 'She is supportive' (TR4P4); 'Supportive' (TR4P1); and 'She cares about students a lot (TR1P1). Other students are more specific and associate support with an encouragement to keep working and progressing. Comments of this type include: 'She supports me especially during all-region' (TR3P2); 'She is very supportive and encouraging' (TR3P3); and 'I love how she builds you up, instead of tearing you down' (TR1P4). Ten students state an appreciation of their teachers' knowledge and teaching skills. In their comments they

mainly show their beliefs that their teachers have resources to help them to overcome any difficulty that they might find, saying; 'She knows what to do immediately when I am not grasping a concept' (TR3P3); 'She usually knows what to do to fix things' (TR3P4); 'She can explain anything' (TR3P4); and '[She] strives to help me play better' (TR4P1). For student TR1P1, the teachers' resources include the ability to adapt their teaching to each student in particular, saying, for example that: 'She adapts her teaching to every pupil' (TR1P1). Four more comments focus on teachers' knowledge of instrumental technique. One of the students particularly appreciates her teacher's scientific approach, whilst another one finds it interesting that technique is taught in a creative way, saying that: '[She admires the] scientific approach (plus solve the problem not the symptom attitude)' (TR4P2); 'her technique' (TR4P3); 'her creative technique' (TR1P2); and that 'she has helpful techniques' (TR2P1).

Teachers' approach to music in general and music teaching in particular are also appreciated, as well as the way they reinforce their explanations by modelling what the student is expected to do. Comments reflecting this include: 'I like her attention to detail' (TR1P6); 'I like her approach to music in general' (TR1P6); and '[I like her] demonstration[s]' (TR3P1). Most comments made by students to describe what they liked about their teachers include references to their character. Two thirds of the twelve comments made by ten students praised teachers' patience and good manners, saying: 'She is kind and patient' (TR4P4); '[She has a] calm tone in her voice' (TR3P1); 'She is patient and optimistic' (TR2P1); 'She is very kind' (TR1P5); 'She is very patient' (TR1P5); 'She is very patient' (TR1P4); 'She [is] always trying to encourage you kindly' (TR1P3); and 'She is patient' (TR1P2). Two other students appreciate their teachers' energetic character as well as the fact that learning takes place in an enjoyable context: 'We have fun while we learn' (TR3P2); and '[the teacher has an] energetic, bubbly personality' (TR4P2). It is particularly interesting that two students consider positively two characteristics that seem to be contraries, saying: 'She is not too demanding' (TR1P3); and '[She is a] strengthener' (TR2P2).

Students were given the opportunity to add any comment that they might find relevant about motivation. Two students insisted in the importance of the support that they receive from external sources, saying: 'She is willing to work with you on what you need help with' (TR1P4); and 'I have a good support system and I am always motivated to go after anything I want to pursue' (TR3P3). On the contrary, a third student considered motivation as an inherited factor that is part of everybody's personality more than the product of the environment: 'Motivation is based on

personality and I feel I was born with the personality to compete. I have a competitive spirit' (TR1P6).

Conclusion to chapter six

In this chapter, I have reported my own research into the practices of Rolland teachers and their students. The group of teachers who follow Rolland's principles is particularly relevant in this thesis due Rolland's scientific approach to the way string players acquire motor skills. These teachers show certain similarities in aspects such as motivation and the use the Actions - short exercises that Rolland proposes in his pedagogy to develop technical skills. It is also possible to see notable differences in other aspects such as the strategies that they use to transmit information to the students and to provoke learning as well as the role that memorisation has in their teaching.

Observation showed that Rolland teachers tend to give an intense pace to their lessons with special attention to the teaching of the 'Actions'. However, the way these actions are taught differs in all the teachers in this group. There is not a pattern that relates the use of certain ways of practice with these teachers. For example, teacher TR2, who also uses guided, physical and oral practice, extensively uses modelled practice. Contrary to this, modelled practice is almost non-existent in teacher TR3, whose lessons are characterised by frequent oral instructions and the student's physical performance. Teacher TR1 is the only one who uses all the types of practice considered in this study.

Teachers claimed to be highly motivated to teach music and to work with children, as well as to be passionate and enthusiastic, although a high percentage of them (75%) also feel certain frustration when teaching. Students also claimed to feel motivated and supported by their teachers and parents. Unlike Suzuki and Zweig students, Rolland students' home practice is not supervised by their parents and the latter's support is mainly logistic.

Finally, the questionnaire on memory draws interesting data about teachers' and students' habits related to the memorisation of the repertoire. All the teachers seem to use similar procedures to enhance their students' memorisation skills. However, not all of them put the same stress encouraging their students to perform from memory. Just one teacher asks her students to perform from memory in a wide variety of situations, including at the lessons, concerts and exams. At the other extreme, teacher TR2 hardly ever does this. Based on the data collected, it is difficult

to relate Rolland teachers to a certain way or method of providing information to the students or to the context where students are required to perform from memory. This shows that there is not a unique way to teach motor skills effectively, even among teachers who follow the same pedagogy.

Chapter seven. Zweig group

I shall consider the Zweig group from three perspectives: first, my observation of lessons, second, the questionnaires and, third, an interview with Mrs Zweig (a transcript of which can be found in appendix A1).

Observation

From the group of five teachers who profess to use the Zweig method (identified here as 'TZn') I first consider three teachers whose lessons I had the chance to observe and film. It is regrettable that each is employed in the same department since none others could be found. All these violin teachers work at the String Academy of the Jacobs School in Bloomington (Indiana) and follow the same syllabus that reflects Zweig's philosophy and influences. These influences come from Suzuki, Rolland, Kodaly and Galamian among others. Students learn the Suzuki repertoire for the first years of instruction as it is considered by Zweig a good selection of pieces, carefully selected and sequenced and in which technical difficulties are presented in a progressive and logical order. Zweig also utilises the Suzuki repertoire within her pedagogy as the trunk of a tree where branches and leaves are added at every level under the form of studies, extra repertoire, scales and technical skills. Non-Suzuki repertoire includes traditional studies such as those by Wohlfahrt, Kayser, Kreutzer, Sevcik or Dont; double stops by Trott (Trott, 2007); books of technical exercises for beginners such as Magic Fiddle (O'Reilly, 1991); pieces for group lessons and scale books such as the one by Galamian.

From the initial stages the way students learn movements and technical skills follows the Rolland Pedagogy. Students have a weekly private lesson plus a group lesson where they not only work on violin repertoire but also learn musicianship based on Kodaly. Suzuki's philosophy also has a clear influence on Zweig's pedagogy as it shows the fact that parents must assume an active role in their children's music education. In order to be accepted in the string Academy, children's parents have to pass an interview where they are explained the main principles of the programme as well as told what is expected from them. Children are accepted only once their parents' have agreed to all the terms and accepted they must be actively involved. Parents must attend the lessons for the first years, note the homework down and help their children with the daily practice at home.

A high commitment is expected for all the members of the educative community including parents, pupils and teachers. Teachers meet once a week to discuss a student's evolution, to plan activities and to share any problem that they might have.

The syllabus that all must follow is very detailed and includes not only the repertoire but also the technical skills that the students must acquire at every level, including scales, bow strokes, studies, pieces.

Pupils are expected to play at a very high standard from the beginning. Zweig emphasizes the importance of the environment in creating high references that encourage every student to pursue high goals. The String Academy is settled at the campus that the IU (Indiana University) has in Bloomington, sharing the venue with the college of music, which has a world-class faculty. More than 1000 concerts are organized every year where children can not only observe advanced college students but also international artists, ensembles and orchestras.

The Zweig teachers have weekly meetings to coordinate their teaching activities and all the teachers in the department receive feedback from their colleagues after students' concerts or auditions. Further, one (TZ1) of these teachers has developed an international reputation as one of the most influential string teachers in the World.

Teacher TZ1 teaches both beginner and advanced students. Lessons are generally intense with a focus on physical practice. The length and the type of the strategies used by each teacher depend on the student's level although some characteristics are common to all the lessons. Teacher TZ1 teaches sat in front of the student maintaining constant eye contact. Visual and oral communication is permanent. The youngest students attend the lessons with their parents who also take notes. Advanced students take notes by themselves during the lessons, generally on music score. Oral instructions are shorter for advanced students and frequently take place whilst the student is playing. On occasions it seems that the purpose of these short comments is to inspire students' performances to show the character of the music. Questions are mainly asked to young students and frequently aim to check that the student has understood a certain instruction or how to practice at home. At the beginning of the lessons teacher TZ1 usually asks her students about their practice at home. In the same way, at the end of the lessons she usually asks the student to remember what they have been doing during the lesson and what they are expected to practice.

Another difference between teacher TZ1's lessons to beginners and advanced students is the way she uses modelled practice as examples played by the teacher tend to be more numerous but shorter for advanced students. Occasionally, teacher TZ1 asks her students to use a mirror so that they can observe what they are doing. Another variation of modelled practice is the use of the computer as a way to find recordings by well-known artists of the pieces that the students are learning. When students have more technical problems teacher TZ1 usually interrupts them more

frequently, preferring in this case longer explanations and instructions to modelling. Guide practice is present in half of the lessons observed and it mainly takes place with youngest students. In all cases, physical practice usually takes most of the lesson time, being higher as a proportion of lesson time than for any other teacher in this study. Interestingly teacher TZ1 uses fewer types of practice at her lessons than the other two teachers in this group. She tends to focus the activities on oral comments and physical practice with less presence of the other types of practice. For example, just one of her students used the metronome while practising and none of them used imagined practice.

Teacher TZ2 is also a very experienced and highly qualified teacher who shares managing and organizational responsibilities with teacher TZ1. These two teachers present several common characteristics such as the significant predominance of physical training over any other type of practice. Those teachers show a similar proportion of on-task behaviour at their lessons (between 80 and 90%) – doing so at a higher level than teacher TZ3. The number of strategies per hour is also similar with all lessons being in a range of 103-150. This is noticeably higher than teacher TZ3 whose lessons mainly are in a range of 68-91 strategies per hour, with just one exception.

Teacher TZ3 usually emphasizes how important repetition is. She interacts with her students with short comments and by modelling short examples. Similarly to teacher TZ1, most of the lesson is focused on physical practice. Besides physical and oral practice, other aspects are more present than for teacher TZ1. Teacher TZ3's lessons therefore show a more balanced use of all the types of practice. Teacher TZ2 frequently uses guided practice and also asks questions to her students to check their level of understanding. When teaching adults the structure of teacher TZ2's lessons are slightly different. In a lesson given to a 24-year-old, guided and modelled practices were not present and the student was not asked any questions. Instead, the lesson was focused on physical practice with sporadic comments and examples. When stopping a student's performance teacher TZ1 tends to use both oral and modelled practice whereas teacher TZ2 generally uses either oral or modelled, but not simultaneously.

Teacher TZ2 constantly checks that her students have understood how to practice a certain technique or fragment. In order to do this she uses diverse strategies such as asking the students to write the procedures on the music score, asking them to practice in front of her so she can check that they have definitely assimilated the information and, especially with the oldest students, asking them to reformulate how they are expected to practice.

Finally, teacher TZ2's lessons have a clear structure, generally consisting of scale, mechanism or short technical exercises, studies (generally two) and two pieces. In the last part of the lesson students generally play through a whole movement or piece with piano accompaniment. Parents attend the lessons of the youngest students and at the beginning and the end of the lessons are usually addressed to check what the student did during the home practice and what he/she is expected to cover by the next lesson.

Teacher TZ3 is an extroverted and energetic teacher whose lessons are both intense and enjoyable for the students. She differs in some aspects from her two colleagues but also shares some characteristics in her teaching practice. Teacher TZ3 uses the mirror as an instant source of feedback for her students, as does teacher TZ1. She also asks questions after working on a piece in order to check that the student has understood how to practice at home - something also observed with teacher TZ2. She explains to her students what is similar and different in the piece so they can memorise and work on the work more easily. Guided practice is mainly used with young students, both manipulating the students physically and using external marks on violin and bow, such as stickers. Teacher TZ3 involves the parents of her younger students during the lesson, asking them to take notes and explaining to them what to do at home after every piece or exercise.

Teachers in this group are very systematic in the way they structure their lessons. They use a wide variety of strategies and types of practice, although the most expert teachers tend to prioritise oral and physical practice.

Questionnaires

Five teachers who follow Zweig's pedagogy answered the questionnaires. All of them have a wide experience teaching the violin, spanning nine to forty years. Indeed, four of the teachers have twenty or more years of teaching practice. The range of the students passes from beginner, as young as five years old, to undergraduates aged over eighteen. Although all teachers work at the String Academy, where students are under eighteen, two of them teach at the college working with undergraduates. Just one of the teachers (the least experienced) works with beginners who are under 8 only. Three of the teachers are declared to be active performers, two of them professionally, whilst the third plays in an amateur orchestra as well as at sporadic gigs.

Students attend two lessons per week, namely a private and a group lesson. The private lesson is one-on-one, spanning thirty to sixty minutes, depending on the

pupil's age and level. Weekly private lessons are supported by group lessons where students learn extra repertoire and ensemble skills. These group lessons are in the curriculum for all the students - from beginners to the most advanced. Group lessons at the lower levels include musicianship where children's instruction on music theory, rhythm training and intervals recognition is strongly influenced by Kodaly. The top group usually tours abroad illustrating the quality of the work that takes place within the programme.

One of the priorities that Zweig has for the students at the Academy is that they have enough time to practice the violin. For that reason chamber music and orchestra are taught intensively for a period of several weeks and this takes place once a year. A teacher specialising in sonatas for violin and piano usually visits the academy in order to work intensively with the most advanced students on this specific repertoire. The aim is for students not to get distracted either by numerous lessons per week or by an excess of assignments or homework. Generally groups include students of a similar level and different age. However, one of the teachers explained that her groups include students of the same age and another teacher claimed to teach diverse types of groups - some with all the pupils on the same level and a similar age and others where pupils differs in both parameters.

Teacher questionnaires

The three questionnaires filled in by each teacher cover a wide range of issues related to their teaching habits, organisational skills, their relationship with other members of the educative community and their reasons to teach. Answers seem to be more homogeneous among the most successful teachers, who are also the ones who teach a wider range of levels and ages. These teachers also tend to show high levels of enthusiasm and involvement in their teaching duties.

1. Motivation

This questionnaire addresses issues such as teachers' reasons to teach, both initially in their career and at the time when filling in the questionnaire. Questions related to the level of support that teachers feel from their institution, colleagues and pupils' parents are also included as well as other questions on the strategies they adopt and difficulties they experience when trying to motivate their students. Finally, some questions are intended to make teachers reflect about the concept they have of themselves.

Among the reasons that teachers had to begin teaching violin it is interesting to observe that not all of them had a clear intrinsic motivation to come into the teaching profession. Three out of five teachers claimed to feel a deep love for children and teaching and one of the teachers was motivated by the working conditions, such as salary, timetable or holidays. Teacher TZ4 was clearly motivated by the fact that teaching violin was the only job that she could find although the working conditions were also important for her. The most remarkable case is TZ1 who did not seem to be highly motivated for any of the factors proposed. Her reasons were definitely stated to not be the working conditions or the fact that she could not find any other job. Nevertheless, some interest in teaching and educating children can be in inferred from her mark (three out of seven). At an interview she clarified that when she got her degree in violin at the university she found that to begin teaching was a natural step and wanted to create a programme where she could experiment with her ideas on violin pedagogy. As a result she started a small programme with a reduced number of children where her curiosity for developing her ideas and creating a successful project was more relevant than the money she was initially obtaining from her work.

It is interesting to observe the evolution in teachers' motivation and their reasons for teaching at the time they filled in the questionnaire. Teacher TZ4 put her emphasis on the money she obtains from her job although recognised also that she likes teaching. The other teachers were more categorical in their statements as all of them marked this question with seven out of seven, showing a clear attraction to teaching. The most remarkable evolution was showed by TZ1 who marked not only this but all the other options in the questionnaire on motivation with the highest mark, showing a high level of motivation and belief in what she is doing. This passion was also evident at the interview (Appendix A1) where she explained the evolution and characteristics of her programme.

For teacher TZ2 the job has further implications for children's lives than just learning how to play the violin: 'I love changing people's lives' (TZ2). Similar levels of enjoyment when playing music can also be observed in this group of teachers. All of them seem to enjoy playing music with the highest marks given by the same teachers who showed the highest levels of love for teaching.

Teachers find it more difficult in listening to classical music on a regular basis. When asked to describe how often they listen to classical music, on a one-to-seven scale, only teacher TZ1 marked this question with a seven, whilst the average mark was 3.6, meaning that most teachers listen to classical music sporadically.

There is a similarity among teachers regarding the support that they receive from their institution, with all the teachers describing it as 'good' or 'very good'. However, only three of them claimed to involve the institution in the activities that they organise. One of the two teachers who claimed not to involve the institution did not give any special reason for not doing so whilst the other gave some reasons. These were mentioned not only in her questionnaire response but also in the personal interview and help to explain her decision: 'We like to make our own decisions if possible' (TZ2).

Teacher TZ2 is the co-director of the String Academy and also the director of a string programme at local schools. In both places institutions economically support the string programmes although the director of the project takes most of the academic and logistical decisions, which gives teacher TZ2 a high level of autonomy. As a teaching assistant, teacher TZ5 has fewer responsibilities and it is the institution that involves her in the activities that they organise. For teacher TZ1, who was also the director of her string programme, involving the music school is a natural consequence of being part of it. Teacher TZ3 further illustrates the connection between the activities of her private chamber ensemble and the music school when saying: 'Our chamber ensemble grew out of the faculty in our organisation… we invite our kids, families and teachers to our performances' (TZ3).

All teachers claimed to cooperate with other teachers who work with their students. To do so they have weekly meetings with the other teachers at the string department at which they coordinate activities and discuss any problems that students might have. All activities are planned in advance and teachers are informed in detail of the expectations and goals that every student should achieve. Teacher TZ2 outlined a detailed description of how the cooperation among teachers works in her string department:

> We share students between groups and private lessons, so we talk about pedagogy and students all the time. We all follow the larger pedagogical sequence of the program and our student play in coordinated group and solo recitals (TZ2).

As a teaching assistant, teacher TZ5 constantly checks with the other teachers what she is expected to do with every student in order to be consistent with the work that her students do at their other lessons. 'I observe their lessons when I can and ask them what they would like me to focus on, or I ask them questions about things I have difficulty solving' she explains (TZ5). Teacher TZ4 bases her cooperation with other teachers on avoiding conflicts between their respective activities, both

academically and logistically. For teacher TZ2 cooperating with her colleagues is a natural consequence of the positive and close relationship that she has with them: 'Because they are my best friends and my most respected colleagues' (TZ2).

Motivating students does not seem to be a relevant problem for most teachers in this group. The most successful teachers seem to be those who feel more confident motivating their students. On a one-to-seven scale, the average mark given to show the level difficulty motivating pupils was 3.6, with the highest marks given by teachers TZ4 and TZ5. In order to keep a high level of positive motivation among their students teachers usually apply a wide range of strategies. Teachers were given a list of six strategies in the questionnaire and all of them agreed that they encourage their students to persevere in order to succeed. They also believed that transmitting their love for music enhances a pupils' motivation. Four of them claimed that they try to be funny and make jokes and the same four teachers considered it useful to encourage their students to socialize with other peers as well as to involve parents and families in the educative process. Just three teachers claimed to organise concerts as a motivational tool although not all teachers have the same responsibilities. This is the case for teacher TZ5 whose role in the programme is to assist other teachers reinforcing students' practice.

It is interesting to observe that those teachers who use a higher number of strategies are also those who believe that their students' motivation is also higher. There is also a correspondence between these factors and the level of success that the teacher attains. This is consistent with the fact that teachers TZ1, TZ2 and TZ3 are those who selected all the six strategies in the list as well as those who described with numerals six and seven on the scale their perception of their students' motivation. Teacher TZ4 chose five strategies and gave a mark of five, whilst TZ5 chose two strategies and her mark of three, showing the lowest perception of her students' motivation among the teachers in this group. Teacher TZ5 describes her work at a community music programme as highly challenging in comparison to her teaching duties as an assistant at the string programme, saying being a 'helper teacher at IU and Fairwell Project' is 'much more challenging to motivate' (TZ5).

All the teachers in this group describe themselves as highly passionate when teaching. In general they gave high marks to most of the eight options that they were given in order to describe how they believe their students see them. The highest marks, with averages over six, were given to personal characteristics related to involvement and love for teaching, namely, being loving, committed and enthusiastic. Four out of five teachers believed that they adapt their teaching to each individual, their marks recording six or seven in this category. However, teacher TZ3 is not so

confident about her adaptability since her mark was only four. All teachers feel they are demanding to a greater or lesser extent and, again, four teachers believe themselves to be serious in the way they treat their students. In general, teachers gave high marks to most of the characteristics although everyone marked at least one of them noticeably low. 'Peaceful' was the lowest marked attribute, with an average mark of 3.6. This was the lowest option for all the teachers except for TZ5 who did not feel that 'entertaining' is among her strongest characteristics. The mark of five given by teacher TZ1 to 'peaceful' is remarkably low considering that she marked with seven all the other characteristics. This shows that a certain mark can represent a high or low evaluation depending on every teacher's subjective criteria. The teacher with the widest variety of marks was TZ3, 'serious' and 'peaceful' being the least prominent of her characteristics, followed by 'adaptable to each individual'.

These teachers seemed very comfortable with the way they are perceived by their students and just two of them made some comments on the matter. Teacher TZ3 would like to be more adaptable although she does not know how to become so as she believes she has high expectations of her students and considers those concepts in opposition to each other. 'It is hard to adapt when your standards are very high', she says, and 'I would like to raise my standards (demands?) and increase my adaptability' (TZ3). For teacher TZ5 all the above characteristics are compatible, as she believes that code switching must be part of teachers' routines in order to maintain students' attention:

> I think that good teaching has variation of mood, expression, level of excitement just like music, because it is variation that keeps us interested. Thus, within one lesson, hopefully I will have moments of explaining things peacefully and energetically (TZ5).

Teachers showed total agreement over whether they enjoyed teaching. However, this enjoyment alternates with moderate levels of frustration in most cases. This frustration is especially significant in teacher TZ2, who also was the only one showing high levels of boredom. Boredom and enjoyment can be considered as opposite concepts, although the high levels of frustration can be understood in someone who also has high expectations about their students achievements.

2. Memory

The memory questionnaire covers issues related to teaching habits on memorisation including how frequently teachers ask their students to play from memory, the strategies they apply and the procedures that they follow in order to

enhance a child's assimilation of new motor skills. The main differences were found between the most prominent teachers in the programme and the others, as the former ask their students to play from memory in a wider variety of situations and use a larger number of strategies. Both sets of teachers know how to learn a piece from memory and how to create the automatic movements needed to learn a technical skill.

All teachers claimed that they ask their students to play from memory at the lessons, which was consistent with the lessons observed. Four of them also stated that their students play from memory at the concerts, but just two of them included the exams in their options of playing from memory. However, it could be inferred from one of the comments given by teacher TZ3 that exams are non-existent, or at least they do not have the same relevance as in other conservatoires and music centres. This fact could have been the reason why some teachers have not included exams in the list of situations where their students are requested to play from memory:

> I think the lack of assessment in our program is both a strength and a weakness. We try to train the kids to listen to their own playing as assessment, and I would not want to have grades or exams or juries…but I think a yearly conversation with each kid (and parent), with a senior teacher present, would be helpful. We have an internal system of teacher assessment, which is very productive, if occasionally painful (TZ3).

TZ3 also added that her students are asked to play from memory at the group lessons. All the students and the string academy have weekly group lessons and, as observed at rehearsal, concerts and recordings, all of them play generally from memory. So it can be stated that playing from memory is a basic routine for students in this programme. Consistently with the assumption that playing from memory is a basic pillar in the string programme, all teachers claimed that they teach their students how to play from memory as well as checking that students apply the procedures properly. This basically consists in asking them to explain how they practice at home:

> I ask them to tell me their memorization process in practicing. They usually are very clear about what they do (TZ3).
>
> I ask them to tell me how they practiced it (TZ4).
>
> I check in the lesson that they know how to practice (TZ5).

Among the strategies that teachers show their students there is a total agreement in using analytical methods - both analysing the structure of the piece and dividing it

into small fragments that can be addressed separately. Two more strategies were identified by four of the teachers only, namely: 'To play the whole piece recreating performance conditions (with informal audience, concert dress, etc.)'; and 'To listen to the recording'. It is worth noting that TZ4 has not made reference to recordings seeing that the string programme has strong influences from the Suzuki method. Children following the Suzuki repertoire for the first years of instruction receive a private and a group lesson per week. Additionally, parents attend lessons and work with their children at home and, consequently, listening to the recordings is part of this influence. TZ4's omission of this practice is therefore surprising.

Strategies related to imagined practice are chosen by a smaller number of teachers and include reading 'the music score without the violin (on the bus, during a solitary walk, etc.)' and 'imaging that they are playing the piece'. These options were chosen by 66% of the teachers and represent a higher percentage than Suzuki and traditional teachers, and are the same as ML teachers. The only group of teachers who showed a higher percentage of use of imagined practice was the Rolland set, where 75% of them utilised this method. Three teachers also mentioned that they ask their students to sing the piece and teacher TZ3 also included references to other strategies related to the Rolland pedagogy, such as shouldering the bow and playing open strings:

> Sing the music in different ways (finger numbers, bowing, rhythms, shouldering the bow or playing open strings). Also practice the piece backwards by phrase, accumulatively. Colour code any difficult sections. Start practicing, stopping mid phrase, often alternating with the teacher (TZ3).

When teaching technical skills teachers mainly apply model practice. All of them claimed to play examples showing their students the correct way of performing the pieces. They prefer to give short explanations although three of them also include deep explanations and checking that students have understood how the new technique works. Teacher TZ3 mentioned that she tries to put the new technique into context, either as an exercise or a piece, so children can see the applicability of the skill that they are learning and they will be more motivated to practice. This teacher also seems to understand the benefits of modelled practice when the model is close to the student. She states: 'I set up an exercise so they can discover they need the new technique. They see other students doing the same, so they are motivated to learn' (TZ3).

3. General questionnaire

The teacher's answers in the general questionnaire, with questions covering diverse areas of their teaching procedures, such as context, planning, programming, motivation to teach, memory, evaluation and external cooperation, show an enthusiastic group of teachers who feel proud of their colleagues and their institution. They are passionate about teaching and have a strong sense of teamwork, involving parents, other colleagues and their institution in the activities that they organize. However, they attached different values to factors such as salary, holidays or timetable matters when asked about their reasons to teach. Some differences are also to be found in their level of frustration and boredom.

All these teachers reflect a strong sense of responsibility, good organizational skills and high expectations for their students as well as for their own work. Nevertheless, they show discrepancies in their perception of how well motivated their pupils are and also about their capability to face disruptive behaviours. Generally, those teachers with a lower perception of their student's motivation show more difficulties in dealing with disruptive behaviour in their pupils as do those with lower levels of expertise and responsibility in the programme of the string academy.

Teachers were asked about why they would recommend someone else to learn how to play the violin and also about the values that they try to transmit at the lessons. Regarding the first question they mainly made references to the benefits to personal development that music can bring to those who practice it, including the acquisition of values as well as motor skills. Some of these values include the advancement of: 'Self-discipline' (TZ2); and the development of 'Discipline, awareness of body, self, emotions and how to convey' (TZ4); and 'Discipline, awareness of body, self, emotions… perseverance. Music is intrinsically and extrinsically valuable…' and 'allows for self-discovery' (TZ5). Further, teacher TZ1 referred to the transferable skills that make other learning processes easier after learning the violin. She also stressed the value of loving music in itself: 'Love of music. Enhance learning anything' (TZ1) being an example.

Social interaction was also mentioned by two teachers, both in the sense of the acquisition of social skills and in how music enhances communication between performers and the audience. '(Music develops) how to convey expressions … expands one's world and experiences, connects people … communicates profoundly what words cannot'. (TZ5). It is also an 'emotional release,' teaching 'cooperation' (TZ2).

For teacher TZ4 playing music is fun and this is a reason in itself why it is worth learning. In distinction, teacher TZ3 considered the question in a different way to the

others. She explained in what cases she would consider a child should start learning to play the violin, believing that parents and teachers should consider a child's preferences and that violin lessons should be started when they have expressed their attraction for music. Examples of this line of thinking include: 'Because they want to. For little kids, if they have been pretending to play, or have [been] asked repeatedly' (TZ3).

When describing the values that these teachers try to transmit at their lessons, some of them resorted to general concepts, as in is the case of teacher TZ1: 'Excellence and beauty', whereas other teachers made more detailed descriptions of both activities that they develop at the lessons and values that they try to transmit. Interestingly teachers TZ3 and TZ5 were more specific in naming the values than when explaining why would they recommend someone to learn how to play the violin: 'Reinforcement of correct anything (motions, practicing, paying attention, thinking, attitude). That music is fun. That they must practice consistently' (TZ3). Further examples include: 'patience, persistence, practicing slowly and for excellence'; and 'Positive learning experience' where 'music is fun, enjoyable' and when there is a 'Love for it' (TZ5).

Teachers TZ2 and TZ4 only made reference to the same values that they enumerated when explaining why they would recommend someone to learn how to play the violin. Three teachers gave detailed descriptions about the way they try to transmit these values. They show a deep understanding of learning principles and combine different approaches and strategies. Teacher TZ2 considers that her high expectations lead children to achieve the highest goals. These high expectations are accompanied by permanent support through the process and the teacher herself models the values that she wants to instil in her students. 'Modelling, high expectation, help through the process' (TZ2). Teacher TZ3 also agrees that being strict and asking for a high standard before progressing to a new piece or exercise is the way for her students to achieve the values and goals that she had planned. However, she believes that these achievements require teachers extend their support to both students and their parents. A positive and friendly atmosphere is not only possible but also desirable for this teacher:

> By rewarding successes and honest effort. By giving parents and children practice tools and organisational aids. By not moving on until things are correct. To make music fun. I make the process as creative as possible, join in when I can, and give students choices whenever possible (TZ3).

Teacher TZ5 mentions attitude and correct practice as important. She also includes new ideas such as the importance of adapting vocabulary and the teaching approach to each student in particular. She actively involves children in the teaching process, asking questions and allowing them to take decisions:

> Practice slowly. Practice one aspect at a time: goals, focus. Come to the lessons with a positive attitude, compliment and get excited about what is right, communicate with them at their level. Allow them to have freedom of discovery and to tell me what they are learning, what they think about the music and how they play (TZ5).

Questions referring to classroom management and organisation show that teachers differ in the way they programme their teaching activities, in their criteria to establish goals and in their time management. Generally teachers do not adapt in writing the syllabus of the string department, however, two teachers showed contrary positions as one of them claimed that she always does this whereas another affirmed that she has not written a syllabus yet. In the same way teacher's procedures also differ in relationship with how often they check the syllabus in order to update it. In a one to seven scale all the marks are different, going from one to five. Teacher TZ1, an experienced teacher with more than forty years of career work, commented that she does not update the syllabus anymore. Teacher TZ5 however declared 'non applicable' in her reply as she already explained that she follows no syllabus. This last comment is confusing as all these teachers work at the same programme and all the other teachers seem to work following a common syllabus. Regarding the activities that they plan for each academic year none of them claimed to put this in writing. Instead, all teachers are informed about upcoming activities at the weekly meetings of the string department.

A majority of teachers claimed they inform their students about the goals that they must achieve. Interestingly, teacher TZ3 had not done this before but she mentioned that she was trying to do this for the first time the week she received the questionnaire. When asked whether 'you previously inform your pupils which are the goals they must achieve during the academic year?' she replied, 'No [I am trying to do this for the first time this week with our students]' (TZ3). This teacher was also the only one who affirmed that she establishes the same goals for all the students who are at the same grade or level. All the other teachers prefer to adapt goals to each situation and student in particular.

Teachers were also asked about lesson time management and given three options that they had to evaluate using a one to seven scale. The options were: 'I

usually need more time', 'I usually finish before the established time' and 'I usually finish all the programmed activities on time'. Evaluating these answers it seems that they usually plan more activities that they can cover in a lesson: 'I usually set a timer and just get as much done before the alarm goes off' (TZ5). However, their answers show some contradictions. On one hand all the teachers marked five or higher on the first option, reflecting their need for extra time. On the other hand three of the teachers marked three and four for the last option, which could mean that they cover all the activities under the stipulated lesson time quite frequently. The main contradictions can be found in teacher TZ4, who marked seven at the first two options. She also included an additional comment showing her problems with including, during the lesson time, all the activities that she wants to cover. When responding to the question: 'I usually finish all the programmed activities on time (TZ4), she answered: 'The work is never done' (TZ4).

The last block of questions address the way teachers monitor student's work both at the lessons and at their private practice. Only teacher TZ3 claimed to take daily notes of their pupils' progress. Nevertheless, teacher TZ5 mentioned that she has recently started doing it but only for her private students and not for those at the string programme. This is the case because of her role as a helper teacher. Regarding pupils' practice at home teachers TZ1, TZ2 and TZ3 claimed to check that their students have taken notes of the goals that they must achieve before the following lesson. They also check that notes include the procedures and in the case of TZ3, it is her or the students' parents who record the notes. Teacher TZ4 recognises that she should do it although she doesn't check if her students have taken any notes.

What all teachers agree upon is that they teach their students how to be self-sufficient. Three of them explain how they do this and the most detailed explanation came from teacher TZ3, who also claimed to check that her students have taken accurate notes of both homework and procedures. She says she asks students 'questions' as well as getting them to 'Identify practice strategies,' and 'ask them to identify problems' (TZ2). She also explains she checks whether her students can 'read music accurately. Choose (within a range) how many repetitions will get a good result. Gradually learn to practice (in lessons and at home) by themselves. Eventually, take their own notes' (TZ3), 'isolate difficult sessions first. Analyze the form to help memorisation. 5 times right in a row game - must start back at 0 if a mistake is made' (TZ5). Assessment seems to be more often than not an informal process that takes place after the lesson than an official procedure. When asked how often they assess their students, most of the answers refer to a process that takes

place after the lessons informally – it is 'on-going but not in any sort of official way' (TZ4). This lack of rigour in the assessment process is reflected by the fact that none of the teachers made reference to any sort of exams. Two teachers also claimed to assess their students after concerts whilst one of them also does it at the end of every term.

In spite of this lack of formal assessment all the teachers detailed which issues they consider when assessing, namely, 'musical expression', 'technical skills' and 'practice at home' and 'attitude'. These assessments are transmitted in different ways. The most extended one is informing students and their families orally, although teacher TZ5 also claimed to include comments in writing. Especially striking is the comment added by teacher TZ1, who claimed to assess her students mentally, ignoring any other option. Her students do not seem to receive any feedback on their performances although it was confirmed after observing her lessons that she constantly gives feedback to her students on their performances orally. Another striking issue is the fact that all the teachers claimed that they do not inform their students beforehand about the criteria that they are going to follow when assessing.

Three teachers showed significant problems keeping their students' behaviour under control and their main problems take place at the group lessons. Strategies used by these teachers to sort out problems include catching students' attention, keeping a high level of activity, asking for parents' cooperation or determining where students should stand during the lesson. Further strategies include making the lesson 'interesting and fun' (TZ1), talking 'less, play more' (TZ2) and 'in lessons stand on pennies (footprints) at the ends of my toes. In groups, sit out/down if disruptive. Request parental assistance. If students do not participate/cooperate after being cautioned about behaviour, lesson is over' (TZ3). Additional strategies include a 'placement of students: give them a carpet square to show them where to stay put, and separate students that feed off of each other. Use a strike system where if they get three as a group nobody gets a price (sticker). Keep a fast pace to keep them engaged' (TZ5).

Student questionnaires

All the students included in the Zweig group, identified as 'TZnPn', are enrolled at the String Academy of the Indiana University in Bloomington. The paragraphs below describe the characteristics of these students and the context in which their tuition takes place.

Students at the String Academy usually start their tuition aged five. However, some students participating in this study had been attending violin lessons from an earlier age, although they did not clarify if this happened at the String Academy or previous to their admittance. Fourteen students filled in the questionnaires. Their average age was thirteen years and six months - the youngest being aged five and the eldest being a post-graduate student aged twenty four who was enrolled in a masters degree and attended violin as well as pedagogy lessons. One of the students was a five-year-old who started learning how to play the violin six months before participating in this study. The other students had been studying violin for an average of more than eight years and they had been with the same teacher for the last four years on average. Therefore, it can be assumed that most students had time to become familiar with their teachers' procedures and personalities. There was a balanced proportion between beginners, intermediate and advanced students in this group, representing from the first year to the Masters level, although just one of them is attending a university degree course.

At an interview with the director of the Academy it was clarified that the aim of the institution is for the students to focus on violin playing and their private practice. Therefore orchestra and chamber music are taught intensively for some consecutive weeks every year so students do not have to attend many lessons or sessions per week. Private and group lessons are at the core of the syllabus, as shown by the fact that all of them but the eldest student claimed that they attend group lessons. Half of the students claimed to attend chamber music and orchestra lessons whilst just four students - aged from sixteen to twenty - attended harmony/analysis. Music theory seems to be another important subject in the programme as twelve students chose this option. Five students were also learning how to play the piano and one of these five also claimed that she attended other subjects, namely, voice, improvisation and ear training. The student enrolled in the master degree also had other subjects in her syllabus although she did not clarify which ones.

The economical and social background of the students in this group was diverse. The Jacobs Music School where the String Academy is based supports those students whose families cannot afford the fees, providing annual bursaries. This makes a student's acceptance on the programme mainly dependent on an initial interview with the parents where they are informed of the characteristics of the institution and what it is expected from them. This includes active parental involvement as they are asked to attend the private and group lessons as well as to take notes and to practice at home with their children. After being accepted students

are immersed in a positive and supportive atmosphere where high commitment and high quality playing are expected from everyone.

1. Memory

Questions in this section are intended to show students' habits regarding the memorization of the repertoire, as well as to clarify which difficulties they find and which strategies they use in order to make the memorization process easier.

Performing from memory seems to be a habit for all the students in this group. They do not show relevant difficulties and they are aware of a wide variety of strategies that can help them to enhance their memorization skills. Students were asked under which contexts they perform from memory and they were given three options, namely, at concerts, exams or lessons. Their answers make it possible to infer that students are encouraged and trained to perform from memory from the first stages in the programme. Thus 100% of them claimed to perform from memory at concerts and the lessons and all but three also do it at the exams. From these last three, one was a five year old who had only started the violin tuition in the previous six months, so it is likely that he had not had any opportunity to undertake an exam. The other two were over fifteen and no apparent reasons support their answer. Other scenarios where students claimed to perform from memory include the group lessons, at their private practice and at the church. Two of them specifically claimed to perform from memory 'always' (TZ1P1 and TZ2P3).

Students were asked to choose from a list of six options including tools that they might use in order to facilitate the memorization process, including, 'I listen to the recording', 'I analyse the structure of the piece', 'I divide the piece in small fragments', 'I read the music score without the violin (on the bus, walking, etc)', 'I imagine I am playing the piece' and 'I play the whole piece recreating performance conditions (with informal audience, concert dress, on stage)'. They were also given the opportunity of commenting on any other strategy that they use at their practice.

From the list students chose an average of 3.5 strategies each. All of them chose at least three of them, except student TZ1P4, whose comment shows two issues. On the one hand she seems to consider the process of memorising the repertoire as an easy and natural task. On the other hand, this naturalness seems to be accompanied by a lack of awareness as to how this process works as she did not mention any strategy that she might be applying. She gave the impression that the memorization of the music simply happens after working on the piece for a certain period of time: 'By the time I have learned the notes, I can play from memory' (TZ1P4).

Since the Zweig approach is strongly influenced by the Suzuki method it seems consistent that eleven students claimed to listen to the recording as a tool to learn pieces from memory more easily. However, a larger number of students chose another strategy as thirteen of them claimed to divide the piece into small fragments. Also eleven students affirmed that they recreate performance conditions and a smaller number chose other options such as the student who referred to the analysis of the structure of the piece or the practice without the instrument. Five students claimed to read the music score far from the practice room, just imagining that they are playing what they read, while three more claimed to use their imagination even without reading the music score: 'I sing it a lot in my head at school and play it with my fingers without the instrument' (TZ1P3) was a comment made by one student. Teacher TZ3P2 added a comment describing a procedure that she considers helpful when memorising music, stating that she seeks to 'practice in front of the mirror' (TZ3P2).

Students described sixteen different difficulties that they find when learning the repertoire from memory. Interestingly, almost a third of the comments reflected a lack of difficulty in playing from memory. 'I do not have any problems memorising' (TZ1P1) and 'I am used to play from memory' (TZ1P2) were typical comments. Three students indicated 'Not Applicable' when asked to describe the difficulties that they have to face during the memorization process. This may imply that this is a natural task for them. Among the problems enumerated by the students, a majority of them make reference to 'Nerves' (TZ1P3, TZ2P1, TZ2P5, TZ3P4) and three of them to distractions or lack of concentration: '[My] mind goes blank sometimes' (TZ3P1); [I am] 'not focused. Distracted by audience making noise' (TZ3P2) as well as having 'difficulties with distraction' (TZ1P3), being other examples of similar thoughts.

Student TZ1P5 referred to tiredness as a factor that may make him fail when performing from memory. It is especially interesting that only two students (TZ1P4 and TZ2P4) referred to a lack of preparation when most of the students suggested that increasing practice previous to performance could enhance their memory. Another student pointed the finger at the increasing length and technical difficulty of the pieces she is working on as the cause for her memorization problems. 'It is difficult because I am getting up to the higher pieces that have more notes and go faster' (TZ3P2).

Most of the answers given by the students when asked how could they improve their memorization skills make reference to an increase in the amount of practice, stating that they should complete 'more repetitions' (TZ1P5), 'practice, practice, practice' (TZ2P1), have 'more practice' (TZ2P4) or be 'performing from memory

more' (TZ2P5) as well as committing to 'practice for a longer amount of time every day' (TZ3P2) and 'practising harder' (TZ3P4). The rest of the answers seem to reject the fact that further enhancement of the memorization skills was needed as is reflected by six students leaving this question blank or indicating 'Not Applicable', as well as by the following comment, 'I think my memory is fine and will improve naturally with time' (TZ1P4).

2. Motivation

Intrinsic and extrinsic motivation are addressed in a questionnaire (see appendix C2) that includes references to the reasons that moved children to start learning the violin as well as the reasons that they had to keep playing by the time of filling the questionnaire in. A set of questions refers to external factors, namely, the influence of their parents, siblings, friends and teachers. Another set of questions includes references to their motivation to listen to music, attending the violin lessons or performing in front of an audience. The aim of all these questions is to reflect the students' relationship with music from a wide variety of viewpoints.

Some differences can be observed in the reasons that initially moved students into music and the motivation that they felt when filling the questionnaire in. Parent's support is recognised to be important as well as the teacher's. However, parents are not the main source of motivation to continue playing the violin. Most students show a relaxed attitude before starting a private lesson although occasionally this attitude might have negative connotations. In the same way performing in front of an audience seems to be a positive experience for a majority of the students.

An evolution in the students' reasons to learn music can be observed in their answers. Parents have a strong influence in them starting violin lessons. This influence decreases notably after some years. Therefore when asked 'Which are your reasons to learn the violin nowadays?' just two students indicated that they were obliged by their parents. Instead, the fact that they like music (another factor already present from the beginning although to a lesser extent) has a stronger presence, with thirteen out of fourteen students claiming it as decisive. A relative's and friend's influence seem to be the same along the years, while some students develop an interest for music as a profession (four students). As a beginner student TZ1P1 had a strong influence from Joshua Bell - a local violinist who has achieved great international success and shows how artists can become a determinant source of inspiration for new young performers ('I wanted to be like Joshua Bell who I was very exposed to' (TZ1P1)).

Since students in this group started to learn to play the violin at a very early age, the influence of external factors such as family, friends, teachers and international artists is understandable. The evolution of their motivation towards a higher interest for music, both as something they like and as a profession, might indicate the positive influence that parents and teachers have on the young children.

The fact that none of the students considered the option of giving up in the future is consistent with the arguments exposed in the previous paragraph. Six students believed that they were going to play music as amateurs, while nine out of fourteen students were considering music as a profession. One had the intention of staying in music although not as a performer or a teacher instead seeking to 'pursue a music/technological related career' (TZ1P2).

Most students feel confident in a wide variety of musical contexts including private lessons, public performances and when doing their daily practice. Scales one to seven were used to measure these levels of confidence and generally speaking marks given by the students are high or moderately high. Occasionally some students showed a certain lack of confidence in one or more of these contexts but their low marks cannot be related to a certain teacher, age, gender or any other parameter, as the lowest marks are given by students who have different characteristics. Even though two of the students (TZ3P1 and TZ3P2) gave low or moderately low marks to all these questions, students generally show lack of confidence just in some contexts, as shown by student TZ2P4 who does not feel very confident at her lessons but believes that she is more talented than most of her peers and that she is fairly good at practising.

Most students in this group recognise strong support from both parents and teachers. Parental support is appreciated in different ways, the youngest students being those who claim to receive a higher economical and logistic support, while the eldest students stress the emotional and affective support. However, some exceptions can also be observed. Sometimes these exceptions confirm different evaluation of parental support whilst occasionally these differences might indicate confusion or a lack of accuracy when filling in the questionnaires.

Interestingly none of the students claimed to not receive any sort of parental support. Eleven out of fourteen students mentioned the 'economical' support, and ten also named 'driving you to the lessons' and that parents praise them and recognise their efforts. Just four and six students mentioned of parents that 'they attend the lessons and take notes' or help 'with practice' respectively. This could be explained by the age of the students (average of thirteen years and six months), with some of them over fifteen. However, this is not consistent with the answers given to another

question where students were asked how frequently their parents meet their teachers. Here eight students confirmed that their parents attended the lessons and met their teacher regularly. Even TZ1P2, who initially just claimed to receive economical support from his parents, gave more details on his parents support:

> Q. How often do your parents meet your teacher to keep informed about your progress?
>
> A. Every so often (a few times per term) (TZ1P2).

Nine students also claimed that their parents are always willing to listen to them. This shows that they not only appreciate the economical and logistic help but also the emotional support. Some young students (TZ3P4 and TZ3P2) did not confirm whether their parents attend the lessons or help them when practising, but this seems to be more a mistake when filling in the questionnaire than a reflection of a real situation as it is compulsory for all parents, whose children are young students, to attend the lessons, take notes and help their children at home with the daily practice. Further, student TZ3P4 did not confirm whether her parents drove her to the lessons when, given the location of the String Academy and the young age of the student (9 years old), it seems very unlikely that she is able to go to the lessons by herself.

Students TZ1P2 and TZ2P4 consider that their parents' support is merely economic and logistic, not showing any perception of their parents' interest for what they do at the violin lessons. The two eldest students, TZ1P4 and TZ2P5, do not receive any economical or logistic support from their parents and, understandably, they attend the lessons alone. However, it is interesting to observe that they certainly recognise their parent's interest as the first, who is twenty, claimed that they are always willing to listen to her and the second one, who is twenty-four, claimed that they usually praise her and recognise her efforts.

A teacher's support is highly appreciated by all the students, as is shown by an average mark of 6.6 out of 7 when asked to describe the level of support that they perceive. Students made twenty-five comments describing what they like the most from their teachers' character and way of teaching. Six comments make reference to the teachers' knowledge; six more to their character and thirteen comments emphasize the support that the students feel from their teachers. In the first group of comments some of them are non-specific, praising teachers' knowledge without providing any further detail. An example of this is 'Her approach to violin teaching' is 'knowledgeable' (TZ2P5). She is a good violinist' (TZ3P3). The rest of the comments praise a particular aspect of a teacher's knowledge, for example, the teacher is 'Very

knowledgeable with technique' (TZ1P1) and 'She is wonderful at breaking difficult tasks into tolerable bits' (TZ1P2) as well she providing 'good examples to show you stuff' (TZ1P3 and teaching 'me how to practise' (TZ2P1).

Energy and enjoyable character are also traits that, if possessed by their teachers, are much appreciated by these students. Students commented on their teachers that they are 'Very energetic and fun to be with (TZ1P1) as well as being a nice teacher (TZ2P2), 'always cheerfully' (TZ3P1) and 'she is fun' (TZ3P3) reflect this. Support perceived by the students helps some of them to establish a close and trustful relationship with the teacher, meaning the teacher is perceived as not just a teacher but someone who 'Listens as a friend' (TZ1P4). Some students appreciate a positive approach where the teacher believes in the student's potential, one student, for example, saying of her teacher that 'She treats everything as a possibility. Very positive. You can do anything: attitude' (TZ1P2) and that 'She is always nice about the way I play, even if I make a mistake. She is always proud of me' (TZ3P2). It is also considered a positive characteristic that teachers are strict, pushing students to get the most of themselves. Comments such as 'Always pushes to get the most of every piece' (TZ2P4) and 'She makes me work hard' (TZ3P4) reflect this. Other comments include references to how teachers help students to make progress or to work on pieces that they like, such as 'She helps me to play better' (TZ1P5) and is 'willing to help me work on pieces that I can play at church' (TZ3P1). Finally, students appreciate when a teacher's comments are supportive and addressed to enhance a student's progress without unnecessary criticism, showing appreciation of a 'Non Judgemental attitude (TZ1P4) and 'constructive feedback' (TZ2P5). Other comments included by the students make reference to how supportive or encouraging teachers are, without specifying why, such as whether the teacher is 'Very upbeat and encouraging' (TZ1P3) or 'Always encouraging' (TZ3P2).

Conclusion to chapter seven

In this chapter, I have reported my own research into the practices of Zweig teachers and their students. Since Zweig's ideas are grounded in other pedagogies, such as Suzuki and Rolland, some of the procedures and strategies that traditionally are associated with these pedagogies can also be observed in Zweig's teachers. However, the teachers and students in the Zweig group distinctively show other features also.

The Suzuki repertoire is at the core of the syllabus at the String Academy where Zweig and her team work. Scales, studies and extra repertoire, complement this

although the repertoire is not the only aspect shared by Zweig and Suzuki. Performing from memory is also a pillar of the method and parents are highly involved in the learning process (specially during the first years of instruction, when they attend the lessons and support their children's home practice) and both teachers and students claim to be highly motivated. In spite of this, teachers claimed not to be intrinsically motivated to teach when they began their careers.

Rolland's influence is also perceived in the way motor skills are taught, prioritising balance and the absence of unnecessary tension as well as in the way that teachers give instruction to their students. Zweig shows a wide variety of resources when trying to induce learning in their students, prioritising physical practice and minimising off-task behaviour. Lessons are very clearly structured, with time to cover technique and repertoire while teachers are aware of students' feedback, checking not only their understanding but also that they know how to practise.

Teachers in the Zweig group have high expectations of their students from the first stage, which is accompanied by a strong support from both the faculty and the institution. Cooperation and communication among members of the faculty are fluid and permanent, as shown by their weekly meetings, allowing teachers to feel they are part of a team and to share goals as well as procedures. All these factors contribute to creating a positive atmosphere in which teachers feel proud of their colleagues as well as appreciated by students and their parents.

It is evident therefore that Rolland's influence, as well as the organisation of the programme where Zweig teachers work, facilitates their frequent, homogeneous and conscious use of ML principles. This has an impact on teachers and students' procedures. This includes solid tools to enhance students' memorisation skills and strategies to send information and provoke learning effectively whilst keeping high levels of motivation.

Chapter eight. Motor Learning Group

Data obtained from lesson observation and the questionnaires filled in by teachers and students of the ML group are analysed in the upcoming paragraphs.

Observation

The three teachers in this group, identified as 'TMLn', show numerous similarities in spite of the fact that their careers differ not only in the number of years spent in the teaching profession but also in their level of prestige compared with their colleagues. I have participated in this group as teacher TML3. All teachers in this group involve parents in the learning process as they are requested to attend the lessons and take notes. Parents also support their children at the daily practice. The structures of the lessons also show similarities, as all three teachers usually start by asking the students what they did during the week and planning the lesson afterwards. Performing activities usually start with scales and warm up exercises, followed by several pieces and, occasionally, studies and sight-reading exercises. At the end, students are reminded of the issues covered during the lesson and what they are expected to achieve at their private practice, including which procedures they must follow.

From the ML point of view, the graphical analyses show a similar number of values per lesson in all of them and, consequently, a similar number of values per hour. Proportions of the different types of practice also show certain similarities, enhancing the dominant role that students' activity assumed at the lessons. This comprises physical practice (with and without the help of the metronome) and guided practice. Oral instructions are on average shorter than for the other groups of teachers, whilst questions and teachers' examples are both numerous. Less expert teachers frequently use oral and model practice when their students are also playing, whilst the most expert teacher generally wait for the students to stop in order to play examples and give instructions to them.

Teachers TML1 and TML2 interact with their students' parents during the lessons, giving explanations and asking questions of them in order to check their level of understanding. Even though teacher TML3 also involved parents, he tended to give most of his explanations at the beginning and at the end of the lesson, focusing his attention on the student for most of the lesson time. Although all parents take their own notes, teachers frequently check those notes and in some cases (especially with beginners) they also note homework down. Due to teachers TML1's and TML2's habit of talking and demonstrating whilst pupils are playing, the percentage of

modelled practice reflected in the graphics is lower than the real time that these teachers expend on modelling.

Although the three teachers in this group significantly apply most types of practice in all the lessons, every teacher tended to give priority to one or two of them. Guided practice is significantly higher for teacher TML2 whilst teacher TML1 prioritised physical practice. Both physical and guided practices are highly present in most lessons given by teacher TML3.

Summarising, the most relevant feature in this group of teachers are the similarities that they show for a high number of parameters shown in the graphics, namely: the number of values per hour, on-off task behaviour, number and distribution of types of practice used at every lesson, and the high level of students' activity.

Questionnaires

Three teachers identified as 'TMLn', and seventeen of their pupils are included in the ML group that participated in this study. I am also included in this group along with some of my students. The other two teachers work at a music conservatoire in Spain and belong to a group of teachers who have attended training courses on ML and violin pedagogy for more than 100 hours, in workshops that I gave to them every term during three consecutive academic years.

Pupils learning with the teacher at the music school in the UK pay a tuition fee every term. Their parents must pass a selection process consisting of an interview where they discuss with the teacher their aims and expectations and they are informed about the terms and conditions that they must accept by signing a contract. These conditions include regular practice and the parents' involvement during the lessons as well as at the daily practice. Pupils receive a private lesson every week, spanning thirty to sixty minutes per session, depending on their age and level. Additionally, students attend weekly group lessons on other subjects such as violin ensemble, musicianship, aural training, chamber music and orchestra. At the group other teachers also teach lessons to students and the number of subjects depends on everyone's level. The average age when a student begins playing the violin is four years old. Most of the students prepare exams for the ABRSM, the British system of exams whose syllabus includes scales, pieces, sight-reading, theory and aural training. It is the teacher who determines when pupils are ready and discusses children's participation in exams with their parents so that these tests are not necessarily taken every year. The syllabus is also established by the teacher

depending on each pupil's aims and needs after an introductory interview with the parents.

Pupils at the Spanish conservatoire start their musical education when they are no younger than eight years old and they do not need to do any periodical payment for their tuition, but only pay a low fee at the beginning of every academic year. Teachers do not select their own students. Instead, there is a committee that organises the selection process for new applicants. Once they pass this audition, the students can choose the teacher they want to study with. Parents are not involved at the selection process and it is up to every teacher in particular to take the decision of inviting parents to actively participate in the teaching process.

The conservatoire has a clear organization chart where music departments elaborate a formal syllabus following the guidelines established by the education authorities. Children's progress is evaluated every term and students must pass exams every few years after completing each grade of a total of three. Initially pupils attend three lessons per week, including: a private lesson, a group lesson and a lesson on music theory (including subjects such as solfège, aural training and theory). After four years other subjects are gradually introduced, including orchestra, chamber music, harmony, analysis and music history. Teachers at the conservatoire are free to use any method that they consider appropriate. However, all pupils must achieve the goals included in the syllabus for every grade in order to be promoted to the next level. The number of years that students can stay at each grade is also limited and determined by the education authorities.

All teachers work in neighbourhoods with a medium to high standard of living. Regular concerts and workshops take place at the Spanish conservatoire and local authorities also organize a season of concerts every year. There is a local symphonic orchestra where some students from the conservatoire can play next to professional musicians. Students at the music school in UK are offered wide cultural opportunities, including concerts by top orchestras, soloists and programmes specifically designed for children. Plenty of workshops are available for these students where they can meet other teachers and pupils as well as enjoy performance opportunities.

The three teachers included in this group have undertaken systematic training in most of the concepts discussed in this dissertation, including types of practice, motivation, memory, and the basic principles of ML.

Teachers at the Spanish conservatoire had to pass an audition as well as a theoretical exam in order to gain access to their teaching position. Each has over

seven years of teaching experience and the teacher who works at the British music school, has been teaching for twenty-four years. The first two have developed their careers teaching at conservatoires and they both have passed exams entitling them to appointment in the public sector. The third English teacher has worked in various environments including music schools, public conservatoires and a private studio. All of them voluntarily undertake periodical training in violin pedagogy including the Suzuki philosophy, Rolland, Kato Havas' New Approach and other methods considered more traditional.

Pupils at the conservatoire receive a deeper training in solfège, scales and studies than those at the English music school. However, the British students receive a more intense training in sight-reading and memorization skills and generally work on a larger number of pieces per year. At the conservatoire, children attend some of the lessons (in subjects such as solfège, choir, harmony or music history) next to children who play other instruments, including winds, piano and percussion. However, children at the British music school mainly meet other string players as well as pianists.

All the teachers have similar working conditions in terms of the level and age of the students they teach. Students are mostly under eighteen and their levels range from beginner to intermediate. Just one of the teachers at the conservatoire claimed to teach pupils over eighteen and at a high level. All of them teach private lessons (one on one) as well as groups where all the children have a similar level but differ in age. All of the teachers stated themselves to be active musicians who perform gigs professionally in ensembles and as soloists.

Teacher questionnaires

Answers to the three questionnaires filled in by the teachers trained in ML are analysed below. They include aspects such as the way they promote performing from memory among their students, strategies they use to keep a high level of motivation and to deal with disruptive situations as well as other questions about organization, classroom management and assessment.

1. Motivation

Answers in this section are mainly homogeneous, with just some discrepancies related to the reasons that pushed these teachers into the teaching profession and the difficulties that they find when trying to keep their students highly motivated. Initially, all the teachers agreed they found their working conditions, including factors such as salary and timetable, as an important incentive to begin teaching. Two of them also professed their love for children and teaching - feelings that have not changed since. This is shown in their answers when asked about their reasons about why they currently teach. Examples include: 'I love it. It is my passion' (teacher TML 1); and 'I love music and teaching children' (teacher TML 3). Teacher TML two stated that teaching the violin was the only job he could find. He does not make any reference to any affinity for children, music or teaching. However, his answer to the second question (why do you teach music nowadays?) shows a certain change in his attitude toward teaching music and a positive discovery of pleasure in his job. This impression is reinforced by the fact that this teacher marked his passion for teaching at `6`.

The relationship between these teachers and the other members of the educative community seems to be fluid and periodic. Their answers show a good level of communication at all levels, including with parents, colleagues and at the institution where they work. Thus, 100% of the teachers defined the support they receive as good or very good. Similarly, two out of three declared themselves involved in their institution in the activities that they organize.

The ways these teachers work seems to be based on close cooperation with other teachers, as all of them meet with their colleagues more than once a month. In these meetings, they discuss students' progress, goals and also any difficulties that may be present. One of the teachers showed an interest in his students` other musical studies, such as solfège and music history, so he can apply this knowledge in the violin lessons. This shows flexibility, a willingness to cooperate as well as awareness that all the subjects are important parts of the learning process. This means that through their connection they can produce a more interesting and solid learning experience.

> *Q.* Do you cooperate with other teachers who work with your pupils? If so, how do you do it?
>
> *A.* Talking, applying ideas that they are working on other subjects (solfège, history of the music, etc) (TML2).

This interest in pupils' other musical studies cannot be assumed to be present in all the teachers participating in this study, although as it can be inferred from their answers.

Parents are highly active in supporting their children's musical activities. This includes supervision of the daily practice, being present at lessons with the child and cooperating in extra activities such as concerts and tours. Teachers also show awareness of the positive influence that home support can have on children. Parents are asked to create this atmosphere by encouraging children to listen to music, attend concerts and even organizing informal concerts at home:

> *Q.* Do you invite parents to get involved in their children's musical process? If so, what do you ask them to do?
> *A.* To create a musical environment at home: listening to music, attending concerts, organizing informal concerts at home, etc (TML 3).

Parent meetings are seen as important by teachers, with 100% of them preparing the meetings beforehand and 66% doing so in writing. The same situation applies after the meetings, when all of them claimed to find the meetings useful and one out of three stated they noted some ideas down based on that meeting.

All the teachers claimed to use a wide range of strategies to motivate their students. These strategies embrace social, academic and entertainment aspects. Teachers consider it positive that their students socialize with other students and involve their families in the educative process. They also relate success to motivation and encouraging their students to persevere in order to achieve higher goals. Finally, 66% of the teachers in this group also consider making jokes and being funny as motivational tools and 100% try to transmit their love of music. Independently of the strategies that teachers use, the importance of coordination and agreement between parents and pupils is emphasized by one of the teachers, who states: 'It is important that parents and teachers follow the same guidelines regarding motivation' (TML 3).

In fact, the problems teachers encounter in motivating their pupils mainly relate to the role of the parents as well as the priorities of the older beginners. Teachers TML2 and TML3 espoused the following reasons when asked why their pupils are not better motivated:

> Older beginners (aged seventeen) do not consider music as a priority but as a hobby. Young pupils whose parents are not involved do not practice enough, do not progress and lose their motivation (TML2).

> When parents are too permissive I find difficult to keep the boundaries that I try to establish at the beginning, as routines at home are not consistent with the ones at the lessons (TML3).

Regarding the quotation by teacher TML2 it is important to clarify two things. On the one hand, children can start learning music as late as twelve years old. Therefore, some sixteen and seventeen have not finished the initial grade. Despite this, it is not so common as violin lessons are highly sought after at the Spanish conservatoire and most children start when they are eight years old. On the other hand, under the regulations of the conservatoire, it is not compulsory for parents to attend the lessons. Even though both teachers participating in this study encourage parents to get involved in the lessons and the daily practice, not all the parents follow the teachers' advice.

Teachers have strong feelings of commitment and enthusiasm toward their teaching duties. Positive qualities are highly scored and they see themselves as definitely committed, enthusiastic, loving, adaptable and demanding. Although, not so unanimously, they also think they are energetic, peaceful and entertaining. However, they give less value to adjectives such as 'serious' or 'peaceful'. Perhaps this is because such meanings might be considered as contrary to the passion, energy and enthusiasm revealed in previous answers.

The main discrepancies are found when teachers are asked about the personal characteristics that they would like to add or change. One of them, who filled in all the options with the highest mark (except 'serious' and 'peaceful'), stated that he would not like to change anything. This teacher is the most experienced and shows confidence and consistency in most of his answers. In contrast, the other two teachers, who have been teaching for less than ten years, show a different attitude. One of them would like to be more energetic and entertaining, and the other one shows a permanent willingness to evolve and change. This one also finds particular difficulty in being more demanding, which is perhaps associated with serious and strict teachers more than with teachers who are kind and flexible in their approach. It was particularly interesting to find some level of frustration in the most experienced teacher (three out of seven), when the rest of his answers show him as highly enthusiastic and positive as well as very pleased with the level of motivation in his students. When asked about this point, he responded that this frustration might

originate from the high expectations that he always has, not only of his students but also of himself.

Summarizing, all the teachers trained in ML seem to feel comfortable in their jobs. Further, although their initial reasons to teach differ all of them seem to have in common high levels of fulfilment and passion. Their answers do not include any reference to philosophical approaches such as the Suzuki teachers do, but some of them share with Suzuki teachers their love for music and teaching children.

2. Memory

Playing from memory seems to be a routine demand of the teachers in this group. 100% of the teachers answered that they teach their pupils how to play from memory and clarified how they do so. Their procedures include controlling the way students practice at home as well as more specific techniques such as analysis, listening and imagined practice. Comments include:

> Organizing their [students'] practice and checking that they have been practising in the right way (TML1); and

> Asking them [students] how they practice at home, and checking that they understand the structure of the piece. Emphasizing the importance of listening to the recording. Encouraging them to read the music score when they are not playing (in bed, on public transport, etc) (TML 3).

Students are generally asked to play from memory and this includes doing so in a wide range of contexts including concerts, lessons and exams (just one negative answer in this case). Most of the students at the British music school take the exams organized by the ABRSM (Associated Board of Royal Schools of Music), whose syllabus indicates that applicants must perform scales and arpeggios from memory. Playing pieces from memory is not compulsory but pupils from this school always do it as this is specified in the regulations of the school. The few exceptions to playing from memory that are shown in the questionnaires include chamber music, orchestra and, obviously, sight-reading. Otherwise, children are not only required to play from memory but are also given guidelines that can optimize the memorisation process.

The Spanish system establishes fourteen levels (one academic year per level) that students must pass in order to get the equivalent of a Bachelor degree in Music. These levels are classified in three grades, where the first one includes levels one to

four, the second levels five to ten and the third levels eleven to fourteen. In order to get access to the first level on the second grade, or to any other level on the second grade, if the student has not passed all the previous ones, the regional authorities established that students must pass an exam including the performance of three pieces. At least one of these pieces must be performed from memory, as is stated by the regional authorities in the official regulations.

All the teachers use a wide variety of strategies in order to teach their students how to play from memory. These include: listening to the recording, analysing the score; looking for those fragments that are particularly difficult; and dividing the music into short fragments. Imagination is also extensively used as two of the teachers specifically mentioned in their answers that they make reference to reading the music score without playing so that the students must imagine that they are performing without the physical presence of the instrument. One of the teachers also indicated that he recreates performance conditions, including the concert dress code, playing in front of an informal audience or even on the stage where the performance will take place.

In addition to the options suggested in the questionnaire, teachers also included two more strategies in the 'Other' section. Teacher TML1 relates sections in pieces with different characters that are part of a story, thus: 'Imagining that the piece is telling a story with characters, and relating every character with a section in the piece' (TML 1). Teacher TML3 reinforces practice by programming the same pieces in both private and group lessons, which increases the number of repetitions that students do under his surveillance, thereby promoting memorization.

When working on new skills teachers also showed that they use a variety of resources, from modelling examples to both brief and long aural explanations, as well as guided practice. Examples include: 'I guide my pupils' movements with my hands or I use an artefact' (TML1); 'I manipulate them' (TML2); and 'after my explanation and modelling the movement, I ask them to try by themselves. Then I guide their movements kinaesthetically as well as giving them oral references while they are performing the movement' (TML3).

Teachers have not shown special difficulties in teaching their students how to play from memory. All of them have showed a deep understanding of how musical memory works and have also described numerous strategies that they try with their pupils. Playing from memory seems to be routinely considered as part of the

educative process, as one of the teachers indicated: ‘Playing from memory is a routine that my pupils assume naturally from the very first lesson’ (TML3).

3. General questionnaire

In this section I summarize the answers to the general questionnaire among this group of teachers. All three teachers showed similar approaches in most of the issues addressed in the general questionnaire. These similarities are mainly reflected in topics such as classroom management, organization and assessment. Interestingly, they try to instil in their pupils similar values although learning objectives are not considered and established in the same way by all the teachers.

Some differences appear in the way teachers plan the programme of study as well as the extra activities. This might be attributed to the differences between the institutions and countries in which they work. However, some differences were also found between the Spanish teachers who teach at the same conservatoire and, consequently, work under the same regulations. The main differences in teachers’ answers were found on questions related to the way they deal with delicate situations, such as parent meetings and students’ disruptive behaviour.

Reasons given to learn how to play the violin are mainly focused on the acquisition of intellectual and psychomotor skills. Examples of comments include: ‘Musical education improves concentration, memory, emotional intelligence, psychomotor development’ (TML1); and ‘… development of psychomotor, intellectual and aural skills’ (TML2). One of the teachers makes reference to the recreational character of music, emphasising the important role that ‘enjoyment’ plays in the reasons that might move newcomers into learning music. Another goes further and includes the instilment of life-long values besides the benefits of the development of motor skills. However, this answer is not as consistently present as it was in the group of Suzuki teachers where: ‘Values and skills, which can be helpful for the rest of their lives’ (TML3) was regularly presented.

When asked about the values that they try to transmit at their lessons, teachers with a background in ML are more specific in their answers, making reference to values that they did not mention when recommending violin learning. Thus, teacher TML2 mentions enjoyment again and all teachers refer to qualities that can be applied by children in other situations and spheres next to the music lessons. This shows teachers’ awareness of the possibilities of music learning as a tool to educate children and to instil long-life skills, thus making it more than a mere entertainment

and a goal in itself. Examples of this line of thinking include: '[Teaching a] love for music, self knowledge, self-control, self-motivation, empathy, social skills' (TML1); 'Perseverance, effort, enjoyment, fellowship' (TML2); and 'Perseverance, hard work, respect, love for music, concentration (TML3). Teachers are also aware of the influence they can have on their students through their own behaviour and attitude. Two of them indicated that they try to be a reference model for their students, specifying not only violin technique but also values and attitudes towards life as aspects they try to model. Instances include: 'Trying to be the best example (TML1); and 'modelling: doing myself what I want them to do. This includes not only exercises and techniques but also values such as a positive attitude, punctuality, listening, respect, etc.' (TML3).

Teacher TML1 also shows himself to be aware of the diversity of situations and pupils he needs to deal with and the consequent importance of adapting his teaching to each pupil. Finally, teacher TML3 emphasizes his role as a support for his students when they are under adverse situations. He also notes as well the convenience of keeping a good atmosphere by encouraging good relationships among them: 'Encouraging my pupils to keep trying when something is not working as expected. Not allowing lacks of respect among my pupils' (TML2).

The institutions where teachers in this group work are regulated in very different ways. This affects the teaching staff's flexibility, not only during the process of accepting new students but also when establishing their short, medium and long-term goals. This unavoidably affects the way teachers can plan their activities, contents and procedures, as well as how and when assessments take place. The Spanish conservatoire is an institution dependent on the regional government and regulated by the same laws and regulations that regulate all the conservatoires in the regional community. These regulations include references to the admission process, the age of the applicants as well as the basic contents of the auditions they must pass in order to be accepted. Despite this every conservatoire and its departments have autonomy over some details and are able to select pieces and exercises that are published in its syllabuses every year. Children applying to the conservatoire for the first time do not need to know how to play any instrument but only be able to show certain basic musical skills such as sense of rhythm, pitch recognition, and the ability to sing some short melodies, amongst others. Depending on the marks children get they can choose which instrument they want to learn. This implies that in most cases instrumental teachers have not participated in the selection process and just meet their students at the introductory session of the new academic year. It is then that

students can show their expectations and aims related to their musical studies. However, and independent of the teachers' level of understanding and support, students must follow the syllabus established for every instrument where the contents, goals for each level, repertoire, requirements and assessment procedures are specified. The education authorities determine the maximum number of years, exams and levels that students can stay at when studying at the institution. Further, teachers are not free to decide when they want to stop teaching a certain child. Exams and reiterated failure at promotion to a higher level are the filter that determine when a child must stop learning the violin at the conservatoire.

The British music school is a private music centre autonomously organized by a director who is also the teacher who has participated in this study. This teacher is completely independent and free to choose the criteria used to admit new students and determine when it is appropriate for them to leave the school. Pupils do not need to pass an audition in order to be accepted. It is the parents who must pass an interview where they can discuss expectations, terms and conditions of their children's enrolment at the school. If parents' expectations and aims are compatible with the ethos of the school, and they agree the terms and conditions, their children will be accepted independently of their musical skills. These terms are basically focused on the parental involvement, as one of the parents must attend the lessons with his/her child, take notes on the activities that take place during the session as well as the homework that the child must accomplish at home practising every day under parental surveillance. The syllabus is always tailored to every student's needs and expectations and pupils studying at this school show a wide range of interests and goals, from the mere enjoyment of playing music in itself to those children who want to study at a music college in the future and develop a professional career. There are not a predetermined maximum number of years that pupils can stay at the school and exams are neither compulsory nor organised at the music school. If both pupils' parents and teachers agree for the pupils to undertake exams, an application will be submitted to the ABRSM (Associated Board of Royal Schools of Music).

Children are trained on scales, technical exercises, pieces, aural tests and sight-reading. However, those who plan to do any of the ABRSM exams receive special coaching on scales and sight-reading. Pupils have plenty of opportunities to practise their exam pieces at solo performances both in informal concerts within the group lessons and at quarterly solo concerts in a more formal atmosphere. A significant number of children are interested in passing the grade five exam before the age of twelve as a means to have more chances to gain a scholarship to private schools.

These exams can be taken on several occasions during the year and do not have any influence on the permanence of the pupils at the school. Unlike the regulations at the Spanish conservatoire, pupils at the music school can be required to stop the lessons at any time during the academic year if no significant progress has been made as well as in case of persistent misbehaviour. The policy of the school is that students will apply to do an exam only once they are technically and artistically ready and not because it is the end of the academic year. This makes children's performances in exams highly successful in most cases.

In spite of the structural and organisational differences of both institutions, teachers showed more similarities than differences in the way they consider the organisation of their teaching duties. All of them stated they adapt the syllabus to the particular characteristics of every child, the average of their answers being 5.7 (the range of possible answers being one to seven) and a standard deviation of 1.5. Even more consistent were their answers when asked if they check the syllabus periodically in order to update it. This time the average answer was 6 with a standard deviation of 1. This habit of planning in writing also applies to the activities they consider every year in order to achieve their goals. 100% of the answers were positive, this being consistent with the way they work on the syllabus.

All pupils are informed in advance of the goals that they are expected to achieve during the academic year. However, important discrepancies were found on the type of goals that they establish for each student as two of the teachers declared they do not establish the same goals for all the pupils who are at the same level, whilst the third teacher's answered that he established the same goals for all of them. This attitude can be read in two different ways. On one hand, the teacher could mean that it is the string department that decides the syllabus that must be followed by all the students, so objectives are established by the syllabus not by the teacher. On the other hand, this answer could reflect a lack of flexibility and adaptability to the particular goals and needs of each student.

Time management does not seem to be a significant problem for these teachers. Two of them did not admit to have any problem, covering all the contents that they plan at the beginning of each session. However, one of the teachers at the conservatoire claimed that he usually needs more time to cover all his planned activities. Differences between teachers working at the conservatoire are strong, therefore factors such as the country or the characteristics of the institution where teachers work do not seem to have a direct influence in teachers' discrepancies.

As part of their classroom management procedures, all the teachers use a diary where they note down every pupil's progress. They also show an interest on giving their students tools and organizational skills so that they can make the most of their private practice. These tools include how to take notes on the homework that they need to accomplish by the following lesson as well as strategies to show students how to practice efficiently. Examples of such strategies teachers provided include: 'I teach how to practice... I check that they understand what they need to do (TML1); 'I apply practice techniques… I organise practice time (TML2); and 'Showing them how to practice' (TML3). The main concern for these teachers is not only that students take note of what they need to practice by themselves. They are also interested in checking that their students know how to practice and how to evaluate their own progress, which is facilitated by setting up goals that can be measured and incrementing difficulties gradually in more feasible steps by establishing long and medium term goals. This optimises practice time and students can also learn how to be more self-efficient. Examples include: 'I clearly establish medium and long-term goals' (TML1); and 'making them [students] assume responsibilities gradually. Showing them how to assess their own progress. Establishing goals that are measurable' (TML3). One of the answers also shows reflexive teaching where the teacher analyses the situation by a previous assessment so that he can tailor his decisions to each pupil's needs by looking 'where difficulties are' (TML2). Teachers responded unanimously when asked about what they assess. This includes musical expression, technical skills, practice at home and attitude. One of the teachers was more specific and included a comment reflecting his acknowledgement of holistic assessment, including not only students' performances but also the teaching process in itself and his role as a teacher: 'I assess the whole teaching process, including my own planning and performance, as well as the interaction between parents, children and teachers' (TML3). It is interesting to observe a reference to the interaction between the three elements of the triangle reflected in Rolland and Suzuki's projects, described as the 'teacher-parent-pupil' triangle. This implies the consideration of a team integrated by three elements, with every element partially responsible of the achievements and failures of the educative process.

Answers are not so unanimous when teachers explain how they carry out assessments. Even though all the three teachers say they communicate their assessments to pupils and parents orally, there is some lack of consistency when teachers refer to communication in writing. On the one hand, the teacher at the music school states that he only put his comments in writing for the initial assessment after

the first meeting with a new student: 'I submit an initial assessment after the introductory session. All subsequent assessments are communicated to parents and pupils orally at the lessons' (TML3). On the other hand, both teachers who work at the Spanish conservatoire are supposed to be ruled by the same regulations as they teach at a governmental institution. Both affirm they assess by informing parents and pupils orally as well as giving comments in writing. However, only one of these teachers stated they use marks. After consulting the official bulletin where all the regulations concerning the exams the students must pass in order to get access to the second cycle[4] are specified, it can be confirmed that all pupils get a numerical mark (spanning 0 to 10) for every test. As a result it could be assumed that all teachers at the conservatoire are expected to use these marks; independently of whether they also include comments in writing, even if one of them did not make explicit reference to these marks when answering the questionnaire.

Teachers' answers do not reflect any significant problems when they try to keep children's behaviour under control. Most of the marks are 1 and 2 out of 7 indicating that little or no problems are found. However, one of the conservatoire teachers expressed some concern dealing with disruptive behaviour at the group lessons using a mark of 4 out of 7. Strategies indicated by these teachers in order to keep situations under control could be classified into two types. The first group of strategies make reference to organizational aspects and the way they structure every session. In these strategies lessons are intense and children can stay mainly active, the teachers stating: 'I change lesson dynamics… I plan the structure of the lesson beforehand… I programme activities so that pupils are active most of the time (TML1); and 'permanent activity (avoiding gaps or wasting time)…Frequent changes of activities' (TML2). A second group of questions refers to the mood that teachers show when misbehaviour occurs and two different reactions are reflected in the answers. One of the teachers considers it appropriate to adopt a stern appearance occasionally, while another one prefers to ignore misbehaviour, reinforcing positive attitudes instead, thus: 'Ignoring misbehaviour. Reinforcing positively those children who behave properly' (TML3).

All teachers trained in ML involve parents in the musical education of the students. This involvement adopts diverse forms, including helping pupils in the daily practice, cooperating in the organisation of musical events, such as workshops, children concerts, and, creating a musical environment at home. Although all the teachers

4 This second cycle is called in Spanish 'Enseñanzas profesionales' (professional education).

stated they involve parents in the daily practice, asking them to supervise their children's performance, one of the teachers specified that this depends on the students' level. This teacher is the only one who teaches from beginners to advanced level. Therefore the span of his pupils' ages is wider than for the other two teachers. As previously commented in this study, regulations differ at both institutions and teachers at the conservatoire depend on the headmaster as well as on the dispositions of the regional government. At the conservatoire they have staff in charge of the administration, cleaning and organization, not only for the daily needs of the institution but also for extra activities such as workshops or children concerts, whilst it is the parents who cooperate with the teacher on concerts organization at the music school.

Teachers were also aware of the importance for music students to be immersed in a musical environment. At home parents can help by listening to music or organizing informal concerts, but it is also important that children can socialize with other peers who play music as well: 'I ask them [parents] to let their children to attend summer workshops' (TML2); and 'to create a musical environment at home: listening to music, attending concerts, organizing informal concerts at home, etc.' (TML3) being examples of this line of thinking. Parent meetings usually take place in a comfortable atmosphere, with one of the teachers affirming that although he feels a bit nervous he can keep the situation under control. All the teachers draw conclusions after these meetings, sometimes in writing, although two of the teachers said they just think about the issues addressed.

Cooperation with other teachers seems to be fluid and regular. However, answers differ in depth and details, going from 'Talking to them periodically' (TML1) to aspects related to connexion between subjects, children's progress, goals and the syllabus, for example: 'Talking, applying ideas that they are working on other subjects (solfege, music history, etc.)' (TML2); and 'regular meetings and frequent contact to discuss about their progress, goals and any difficulty that the pupils might have' (TML3).

Finally, two of the teachers considered the fact of involving their institutions in the activities that they organise an important issue. Both inform the latter regularly about these activities and try to organise events that can be enjoyed by other teachers and pupils also. Both teachers gave examples, saying: 'I submit projects at the beginning of the academic year and I keep in touch with the management team' (TML1); and ' [I keep in contact with the institution by] sending information about the activities that I organize. Organizing events that other pupils, teachers and parents can attend' (TML3).

Student questionnaires

A total of seventeen children, identified as 'TMLnPn' and who study with three different teachers, have filled in the questionnaires. Fourteen students are aged eleven or under, whilst three students are aged twelve, thirteen and fifteen respectively. The average time that these children have been learning how to play the violin is less than four years (41.7) months. Consequently, none of them declared to play at an advanced level. 64.7% of the students can be considered beginners and 35.3% are playing at an intermediate level. The reason why none of them is considered as an advanced player might be found in the fact that they are very young. The three eldest students attend their music lessons at a conservatoire in Spain. In this type of institution, children need to be at least eight years old in order for their applications to be considered. This means that most of them reach an advanced level when they are aged seventeen or above. The total number of students attending lessons at the conservatoire is nine, whilst the other eight attend lessons at private studios. In these studios, children are accepted onto the violin programme when they are as young as three years of age. As specified in the instructions of the questionnaires, children aged eight or younger have been helped by their parents to answer the questions. This makes that their answers reflect, in some cases, the parents' opinion more than the childrens'.

Fourteen children have been studying with their present teachers for two years or more, which allows them to be familiar with their teaching methods. One student started violin lessons seven months before completing the questionnaires and she has been studying with the same teacher for all this period. From the eight students who attend violin lessons at private studios, six of them live in Spain and the other two live in the UK. The Spanish studio offers only violin lessons to beginners, whilst the one in the UK also offers musicianship and group lessons on a weekly basis. These musicianship lessons are entitled aural training and the music theory based on the syllabus of the Associated Board of Royal Schools of Music. Some of these children in the UK also attend music lessons during school time. These lessons include orchestra and, in some cases, chamber music.

Students enrolled at the Spanish conservatoire have weekly lessons on solfège and music theory from the beginning of their training. Years later their syllabus also includes other subject such as choir, chamber music and harmony. Students completing the questionnaire averaged 2.35 activities, this figure being smaller than with the British students, who showed and average of 3.33 activities per child.

1. Memory

Questions on habits, frequency and strategies to play from memory have been included in two questioners – one set of questions for teachers and another for students. Some questions are similar in both questionnaires with the aim of comparing teachers' perception of a certain issue with their students'.

All of the students claimed to play from memory always. They mainly play from memory at the lessons and concerts, with sixteen students choosing this option (94.1% of the total number of students). This percentage drops to 52.9% (nine students) when students were asked if they play from memory at exams. However, it is interesting to observe that one of the students at the Spanish private studio is aged five and has never undertaken any exam. From the six British students, four have undertaken exams and 100% of them affirmed they play the repertoire from memory. It is not compulsory for students at the British private studio to pass any exam. Generally it is the teacher who takes the decision about participating in exams after hearing pupils and parents' preferences. In contrast, exams are not optional at the Spanish conservatoire. In this case it is the regional government that determines the syllabus and it includes exams for achieving three grades. The first grade is completed after four academic years, and children who want to continue their musical studies must pass an exam that includes playing, singing and listening as well as music theory.

Three students also ticked the option 'Others' when asked in which situations they play from memory. Two of these students did not give any further details but just marked this option. The third one made reference to his daily practice, saying: 'When I practice' (TML3P2). Comparing students' answers to this questionnaire with their teachers', the fact that these students almost unanimously agreed that they play from memory at the lessons and concerts is consistent with their teachers affirming that they encouraged their pupils to play from memory at exams and concerts. Students from the only teacher who did not ask his students to play from memory at exams were also consistent in their answers, as four out of five said they did not play from memory at exams. Learning pieces from memory does not seem to be a problem for these students. They were asked to choose a value from a one to seven on the scale to indicate how easy or difficult is this task for them. The average mark was 5.18, with all the marks being four or higher except for one of them that marked two.

In order to check students' awareness of the strategies given by their teachers in order to make the memorization process easier, the former were asked to indicate

which strategies from a list of six they use. A seventh option was included so the students could indicate any 'Other' strategies that they apply. The average number of strategies selected by the students was 3.4, where the highest value, six, and the lowest, zero, were given by a six-year-old student from the Spanish studio. Apart from this, no relevant differences between countries or institutions were found in the answers to this question. The most frequent option was 'I listen to the recording'. This was chosen by 82.4% of the students. From the three students who did not select this option, one of them studies at the Spanish private studio where all the students are asked to listen to the recording on a daily basis. This negative answer could mean either lack of awareness of the relationship between listening and development of memorization skills, or a lack of emphasis from the teacher. The other two students who said they did not listen to the recording study music at the Spanish conservatoire. It is interesting to observe how the other seven students from the same conservatoire ticked this option when learning pieces from memory is not specially emphasized in the syllabus of this institution. This might show the influence of the training in ML that these teachers have undertaken in their pupils' habits of practice.

The same number of students (fourteen or 82.3%) also indicated that they 'divide the piece into small fragments'. The seven children who did not select this option are almost equally divided between those studying at the conservatoire (three of them) and at the music studio (four of them). No remarkable differences where observed among teachers either as two children were studying with teacher TML1, three of them with teacher TML2 and two of them with teacher TML3.

A third strategy (analysis of the structure of the piece) was also reflected by 100% of the teachers in the questionnaires. However, it was named by 58.8`% of the students only. Since it has been observed at their lessons that these teachers frequently make reference to the structure of the piece, it could be inferred that some pupils ignore the fact that a deeper knowledge of this structure can help them to memorize pieces more easily. Inversely, the forth strategy mentioned by the students, found in 47.1% of pupils questionnaires, is only mentioned by one of the teachers (33.3%). This strategy is the following: 'I play the whole piece recreating performance conditions (with informal audience, concert dress, on stage)'. Consistent with the previous reasoning, it could be said that in this case teachers might not be aware of the connections that pupils make with the information that they receive. This fact is especially interesting as 100% of the teachers affirmed that they check which

strategies their pupils use to learn pieces from memory. Other factors, such as mere forgetting when filling the questionnaires could also be considered.

The last two strategies in the list make reference to practising without physically playing the violin. Five pupils (29.5%) affirmed that they 'read the music score without the violin (on the bus, walking, etc.)'. The other strategy was chosen by six students (35.3%) and is connected to imagined practice in a more explicit way, namely: 'I imagine I am playing the piece'. In this case, two students from each teacher are included in this last group of six, which shows that imagined practice is part of the resources of all the three teachers. However, just two teachers (66.7%) included each of these strategies in their answers. Finally, in the option of 'Others', one of the students (5.9%) added one more strategy: 'Continual repetition' (TML3P2). Teachers also included references to repetition of pieces that are played at the private lessons as well as at the group lessons, and how analysis can be better understood if every section in the piece is related to a different character that is part of the same story. However, no student mentioned either of the last two options.

Students gave nineteen reasons why their minds can go blank at a public performance. These reasons have been categorized into four types that can also be found in other groups of students, namely: Nerves/Fears; Lack of practice, Distractions; Elements of the music. In this case, the fact that twelve students (70.6%) had made reference to 'Nerves/Fears' as the main factor that can block their memory is especially remarkable. Although most of them mentioned 'Nerves' as a reason in itself to go blank, others related nerves as a factor that provokes other problems during the performance. Examples of this are a lack of focus and fear of mistakes: 'I get nervous and I think I can make mistakes (TML1P6); and a 'lack of concentration provoked by nerves (TML2P5). Students at the conservatoire mainly mentioned 'Nerves' in their responses. This included all four students from teacher TML1 who study at the conservatoire and four more from teacher TML2 (out of five). Just one of the students gave other reasons:

> *Q*. Once you have memorized a piece, which factors can produce gaps in your memory when playing in front of an audience?
> *A.* Not enough practice (TML2P3).
> A. Distractions (TML2P3).

All the students at the private studios who also mentioned 'Nerves' and 'Stage-fright' recurrently are British, as the two Spanish kept this question blank. The second more frequent answer given by the students referred to a lack of practice or lack of

performing experience, stating: 'I am playing it for the first time in front of an audience' (TML3P2). There were three answers in this second group, which is equivalent to 17.7% of the total number of students. The last two types of answers include 'Distractions', (chosen by two students (11.8%) and the 'Elements of the music'. One student (5.9%) made reference to this latter difficulty by stating a difficulty in remembering accidentals such as: 'Sharps, flats, naturals (accidentals sometimes)' (TML3P3). Apart from the two students who did not give an answer to this question, it is interesting to observe that one of the students stated they did not have problems learning pieces from memory:

> *Q*. Once you have memorized a piece, which factors can produce gaps in your memory when playing in front of an audience?
> *A.* Nothing (TML2P2).

When asked how they think they could improve their memory skills, thirteen students described fourteen strategies. They made reference to the length of practice mainly although there were also comments involving other aspects of the practice process and self-control. Nine students (52.9%) made comments related to length of the private practice. Most of them did not include any further details, so that the most recurrent comment was as follows: 'Practising more' (TML2P4). Two of the comments were more specific and clarified that practice should be not only longer but also done without looking at the music score. Examples of this were: 'Memorizing pieces more often' (TML2P5); 'Practice' (TML3P1); and 'Continual repetition without the music' (TML3P2). Since fourteen students affirmed that they listen to the recording in order to learn pieces from memory it is interesting that just one (5.9%) of them made reference to listening when asked how as to how she could improve her memorisation skills, saying: 'Listen' (TML3P5). Two students (11.8%) suggested specific ways of practice in order that the memorisation process could be more effective. One of them is related to imagined practice: 'Singing innerly when doing nothing' (TML1P3). The other has to do with the distribution of the time of practice and the speed of practice performance. This comment also suggested practicing with a long bow, which could be associated with ML knowledge and the variation of the parameters involved in the performance of a certain skill. Another student emphasized how important is to practice consciously, more than just mere repetition: 'I feel that to memorise music you need to be focused and you do not need to rush things' (TML3P4). Finally, four students did not suggest anything, keeping this question blank. At the end of the questionnaire students had the opportunity to add

whatever they would consider appropriate in regard to the memorization process. Just one student added the following comment on the benefits of playing from memory, saying: 'I like playing from memory, so that I can focus my attention on the violin and bow holds' (TML1P1).

2. Motivation

The questionnaire on motivation covered three different areas, including reasons to learn, self concept/self-efficacy and social support. Discrepancies have mainly been found in the reasons that initially moved children to start learning how to play the violin. Instead, most students have a high strong concept of self and also feel well supported by teachers and parents. The two main reasons why students began to learn how to play the violin were because they liked music and because their parents made the decision for them. However, although 47,1% of the students chose one of these options this percentage varies significantly between students enrolled at the Conservatoire and those enrolled at the music studio. The number of students who started violin lessons because of their parents' influence reaches 75% for those studying at either the Spanish or the British private studios. This must be influenced by the fact that children usually start lessons at these music centres when they are as young as three or four years old. On the other hand, students under eleven are not admitted at the conservatoire. This difference in the starting age might make the older students more aware of their preferences. Two other reasons to begin violin tuition were given by the students. Two of them (11.8%) said other friends or relatives who already played music influenced them, whilst another student simply felt attracted to the instrument: 'I wanted to play the violin' (TTM1P2).

None of the answers made reference to any intention to be a professional violinist or music teacher. Students were also asked about the reasons that moved them to study violin by the time of completing the questionnaire. Further, some parameters show a significant change, whilst others remain the same. The most remarkable change is in the number of students who play music because they like it. This percentage moves from 47.1%, to 76.5% and might be due to the variation in students' age as it is likely that older students have clearer ideas about what they want to do as well as being more independent and can make their own decisions. This might also be a consequence of the positive influence from teachers and parents helping children to discover the pleasures of playing music developing their intrinsic motivation. Most students who changed their answers are those studying at the conservatoire. On the contrary, those at the music studios, whose musical

development should have been more remarkable, gave similar answers to both questions:

Q. Why did you first choose to learn music?

Q. Which are your reasons to learn the violin nowadays?

Influence from other friends of relatives who already play an instrument remains the same, and a slight change can be appreciated in the desire to be a professional musician. None of the students considered this latter option when starting the violin tuition and one of them (5.9% of the total number of students) did at the time of filling in the questionnaire.

When asked about their relationship with music in the future most of the students claimed they will keep playing music. Just one of them (5.9%) said he/she would give up and most of them (eleven students, equivalent to 64.7%) believe they will keep enjoying music as amateurs. Three students (17.7%) believe they will be professional musicians, either music teachers (two of them) or professional players (one more). However, this intention to become professional musicians seems to be more a consequence of having studied music for a long time rather than being a factor that motivates them to keep practising, as shown in g.1 where just one student related this intention with a motivational factor.

An affinity with music seems to be consistent across all senses, including listening to music, playing and practicing. Students were asked to answer some questions about their habits and adherence to music by using the one to seven scale. All the questions showed averages over five, reflecting high levels of enjoyment when playing music and even when practising. This last factor being much lower in other groups of students. Students also claimed in their answers that most of them listen to classical as well as other types of music frequently.

Students showed a high level of self-confidence both in their talent and when playing in front of an audience. On a one to seven scale, just two students marked three or less when asked if they feel everything is under control when performing in front of an audience. Both students are aged ten or older, one studying at the Spanish conservatoire and the other one at the British private studio. Nevertheless, as this is a very low percentage of the total number of students, it seems that teachers enhance children's confidence solidly. This positive attitude is also shown at the lessons. Just one student claimed to feel worried and two more were indifferent

before the private lesson. All the rest of the students chose the options ‘Quiet and happy’ and ‘Excited and very happy’.

Only a young beginner at the Spanish studio claimed not to be good at using the practice time. The rest of the students showed their confidence when practising through an average mark of 5.3 in a one to seven scale. They expressed the same confidence when asked how talented they are in comparison to other students. Average marks in this case were five, with the two youngest children keeping this question blank.

All the students in this group claimed that they receive support from their parents. However, their answers differ from other groups of students who show a different perception of this support. All the students are aged fifteen or under and consequently, it is their parents who pay the tuition, purchase the instrument and pay all the other expenses that the children might have. However, just 76.5% of them claimed to receive economic support from their parents. 70.6% of the students said that their parents drive them to the lessons. This seems to be more consistent with the reality as it is probable that some students might live near the music centre and some of them might even go to the lessons by themselves. All the teachers claimed to ask their pupils’ parents to attend the lessons in order to take notes and help their children at home during the daily practice. However, just 76.5% of the children stated that their parents attend the lessons and take notes. Interestingly, a higher number of children (88.2%) maintained that their parents help them with the daily practice, which is interesting considering that parents are supposed to attend the lessons in order to be able to help their children. Two options have mainly been chosen by the students, namely: ‘Praising you and recognising your efforts’ (marked by 94.1% of the students); and ‘They are always willing to listen to you’ (100% of the students). This relevance given by the students to this affective and moral support, in opposition to an emphasis on the economic issues, gives an idea of students’ priorities and their point of view of their parents’ involvement in their musical education. All the parents but one attend the lessons, maintaining a close relationship with the teachers. Consequently, they are regularly informed about their children’s progress.

Students also agree they receive support from their teachers, which is reflected in an average mark of 6.8% on a one to seven scale. They also included thirty-five comments on those aspects that they like most about their teachers’ character and their way of teaching. These comments make references to four different issues, namely: motivation, teacher’s character, teaching skills/style and adaptability. Finally, one of the pupils wrote ‘Non applicable’ as his only answer. Unlike in the group of

Suzuki pupils, none of these students made reference to knowledge or skills transferable to other fields. Not all the comments have been easily classified. In some cases, comments making reference to characteristics of the teacher's character have also a positive influence on the student's motivation. In such cases, comments have been considered as motivational. In the first group, seven comments describe characteristics that might boost pupils' motivation, either by creating a positive atmosphere or enhancing learning. Most students define their teachers as 'Fun' (TML1P6, TML2P1, TML3P3 and TML3P6), and two more as 'Entertaining' (TML1P4 and TML3P3). The last one associates learning with a positive aspect of his teacher's personality: 'He teaches me a lot' (TS2P2).

Fourteen comments make reference to other aspects of teachers' character. Interestingly, most of the students (five) describe their teachers as patient, while some of them do so with special emphasis: 'He is very patient with me (TML2P2); 'He is very patient (TML3P4); 'He is extremely patient (TML3P6). Five students commented on their teachers' good character, some of them being more specific by using terms such as 'Kind', 'Optimism' and 'Very happy' to describe their teachers. One of the students also described his/her teacher as 'Clever/sharp' (TML1P4). Considering the influence that attitudes modelled by teachers might have on students, two comments are especially relevant because of their probable positive influence on a students' attitude: 'He likes what he does' (TML1P2); 'He likes teaching' (TML1P2). One student made a final comment on his/her teacher's character by making reference to his intelligence: 'He is clever/sharp' (TML1P4). References to teachers' style and their teaching skills were included in twelve comments. In them children appreciate facts such as their teachers not being too pushy with them and increasing the difficulty of tasks in a progressive learning manner: 'He does not push me' (TML1P6); 'We go little by little. We do not go fast' (TML2P1); and 'He helps me to play better' (TML3P4). Two of these comments reflect the teachers' support, one of them in a non-specific way: 'He helps me whenever I find a difficulty' (TML2P4). Another student went further, describing how this support is given by her teacher, and making reference to the technical support as well as how the teacher looks for pieces and exercises that are not only appropriate but also enjoyable for the student: 'He tries to improve my technique combining studies with those pieces on my level that I like more' (TML2P5). Students' appreciation of their teachers' knowledge is also reflected in some comments. Examples include an appreciation of: 'Technical knowledge (TML3P1); and 'Teaching technique (TML3P3). However, more important than the teachers' knowledge, is, for

students, the way this knowledge is transmitted. Five comments show this, with specific references to teachers' clarity, teaching skills and depth of the explanations: 'He teaches clearly' (TML1P3); 'He is didactic' (TML1P5); and 'Attention to detail' (TML3P1). Finally, comments also showed teachers flexibility and adaptability to each student's need and preferences. Certainly these comments could have been also included in the group of motivational comments and even in the teaching style section: 'He is concerned about me' (TML2P5); and 'He let me play pieces that I enjoy (TML3P5).

Conclusion to chapter eight

In this chapter, I have reported my own research into the practices of ML teachers and their students. Teachers in the ML group show certain similarities with Zweig and Suzuki teachers in their motivation as well as in the way they structure the lesson, involving parents and enhancing their students' memorisation skills. They also show some peculiarities, especially in the use of the different types of practice.

All three teachers in this group claim to enjoy teaching music to children. This intrinsic motivation was present in two of them since they began their careers in the teaching profession, although the third stated that it was the only job that he could find. Thus, he showed an evolution from extrinsic to intrinsic motivation.

Students whose teachers have undertaken formal training in ML principles showed in their answers high levels of confidence and motivation. This motivational support comes not only from teachers but also from parents, other relatives and friends. Precisely, this positive influence from other relatives and friends is especially present in their initial decision to start learning how to play the violin. Later in the teaching process, this extrinsic motivation is generally combined with intrinsic motivational factors, such as a love for music. High levels of self-awareness and self-esteem are also shown in the children's responses. In this way, they are confident in the how they use time when practising as well as when playing in front of an audience. Additionally, students are aware of their teachers' support, which has been reflected in a wide variety of comments that make reference, with different levels of detail, to motivation, technical knowledge and teachers' personality.

Like Suzuki and Rolland students, those in the ML group are frequently required to perform from memory, including concerts, lessons and exams and claim to use a wide variety of tools when memorising the repertoire. Performing from memory does

not seem to be an issue for these students and their teachers also claim to give their students numerous tools to enhance their memorisation skills.

Unlike teachers in the Rolland group, all three teachers in the ML group show similarities in their procedures when giving information and instruction to their students. The number of tasks per hour is similar in all teachers as well as to those teachers in the Rolland and traditional groups. The length of the oral instruction is shorter than in the other groups while the activity of the students is longer. Modelling and questioning are also widely present in the lessons. These teachers show the highest rate of question time and guided practice per hour and the lowest of oral practice and time given to tasks. All these parameters seem to indicate that the lessons are rich in resources and intense in pace. However, the on-task behaviour is the second lowest among all the groups and similar to those teachers in the Suzuki group. The fact that the third teacher has trained two of the teachers in the ML group could explain the numerous similarities found in their procedures.

Chapter nine. Traditional method group

Teachers and students from the traditional method group participated in this study by filling questionnaires on several issues regarding their teaching and learning habits. This data, next to those obtained through lesson observation are analysed in the following paragraphs.

Observation

Four teachers, identified as 'TTMn', have been included in the group of professionals who use a traditional method. Considering teachers' backgrounds, it could be stated that the group of traditional teachers is the most heterogeneous among those groups included in this dissertation. Not only is their musical education eclectic but also the contexts in which they teach differ. This includes working conditions as well as their students' ages, aims and socio-economic status. Such a lack of homogeneity could explain some of the differences that the analysis of the data in the lesson-observations shows. Most differences are more evident between those teachers who have developed the most successful career and the rest of the teachers. Initially, some characteristics could be related to the level of expertise of the teachers. However, further analysis will be done by comparing these outcomes with the data of other successful teachers in other groups.

To begin with, all teachers in this group use a similar number of types of practice, as all the lessons observed showed five to six of them and on just one occasion teacher TTM3 used four in one of her lessons. However, the way the lesson time is distributed among all the types of practice is not so similar. Therefore, physical and oral practice is more frequent in those teachers who are less prestigious, whilst guided practice is more present in the lessons of the most prestigious teachers. Percentages of modelled practice are higher in the most prestigious teachers as well as in teacher TTM3.

Teacher TTM1 has a very specific way to run his lessons. Children mostly play exercises rather than play pieces (just one of them played a short piece from Book Two of the Suzuki method). Most of his comments include terms such as: 'Repeat'; and 'Again' without giving the students any indication about how to improve their performance. Most questions were addressed to confirm the position of the accidentals or to check if the students had practiced at home, more than in order to provoke reflection in the latter. Students never played from memory. Modelled practice generally took place when the teacher and his student played

simultaneously, and the metronome was extensively used at all the lessons, it being the activity that takes more time at all the lessons but one.

Teacher TTM2's preferred type of practice was oral. Guided practice was almost non-existent and this teacher performed very few examples. In some lessons the majority of the physical practice time was consumed by the student playing a whole exercise or piece without interruptions. It was interesting to observe that even though a low percentage of the lessons was dedicated to off-task behaviours, the percentage of physical practice was very low. Teacher TTM3 hardly ever began the lessons with scales or warm-ups, instead mainly focusing on pieces or studies. Almost no guided practice was observed as the teacher rarely manipulated her students physically. Lessons generally consisted of oral instructions given by the teacher, followed by the student's physical practice. Some quick alternations between the teacher's examples and student's performances took place during the lessons. This teacher did not introduce at the beginning of the lessons what she planned to do, although she recapitulated at the end of the lessons by asking the students what they did during the session and what they must practice at home. Parents attended the lessons and took notes. Teacher TTM4's lessons were intense, with a predominance on guided practice over every other form. The teacher usually gave instructions whilst the student was physically performing the exercises and also guiding the movement at the same time. Oral instructions tended to be short as the questions were mainly addressed to ensure the student was paying attention. Teacher TTM5's teaching habits were similar to teacher TTM4 although oral instructions were more frequent and her performances were generally longer. Explanations were especially long at the end of the lessons when this teacher gave deep explanations of how to practice every difficulty that the student might find in the pieces as well as what they were expected to do by the next session. There were frequent oral instructions whilst the students were performing, something not reflected in the graphics. Parents frequently spoke to the teacher as well. Teacher TTM5 also used imagined practice occasionally. During this she made a child imagine the sound of the strings before tuning.

This frequent modelled practice found in teachers TTM4 and TTM5 was also found in other successful teachers in other groups, especially the Suzuki and ML. Guided practice is also common in other successful teachers although it mainly appears when teaching young students and it is more usual in Suzuki and ML teachers as well. A common characteristic in most successful teachers is a high level of physical activity developed by the students, whilst teachers' interventions entail a lower percentage of the total lesson time.

Questionnaires

Five teachers and twenty-five students have been included in this group, which is the most heterogeneous in this study. Teachers come from different backgrounds, have received different musical and pedagogical instruction and work under different conditions and circumstances. They have in common a wide teaching experience, as they show an average age of 23.8 years, between a lowest value of fifteen and highest of thirty-five.

Two of these teachers are particularly successful at their careers. They are familiar with Suzuki's and Rolland's ideas and one of them has undertaken official training in Willems' methodology. They are frequently asked to teach at workshops and they both teach at a music school as well as at the junior programme of a music college. One of these two teachers also teaches violin pedagogy at the same music college. The other three teachers have a degree in violin teaching and have always been working at the same position (two of them teach at conservatoires in Spain and the other at a private studio in the USA).

At both conservatoires as well as at the college, teachers have stability since they have passed an exam that provided them with a long-life position. At the music school and the private studio, teachers do not have this guarantee. However, since they have been working at the same place for many years they also have certain stability in their working conditions. These teachers mainly teach beginners. Twenty out of twenty-five students participating in the study are beginners. Three of them have an intermediate level and two more are advanced. Fourteen pupils have been studying with their present teacher for one year or less and many of these students are complete beginners. This means that their ability to evaluate their teachers' work, as well as their own experience, are limited. Length of the lessons span thirty to sixty minutes, depending on the pupils' age and level, this being in fact similar in all teachers and institutions. Just two of the teachers claimed they teach group lessons (teachers TTM1 and TTM2). However, students' answers differ from those of their teachers'. Three out of four students from teacher TTM2 said they attend group lessons but only one from teacher TTM1 responded the same. Since this only positive answer comes from the youngest student it could be inferred that just the youngest students attend group lessons and that they swap to chamber music when they are more advanced. This is consistent with the fact that the other students from teacher TTM1 claimed they attend chamber music but not group lessons. Regarding

the other three teachers, just two of the students from teacher TTM5 declared they attend group lessons. Considering that this teacher did not state that she teaches groups it could be assumed that the two students might have considered group lessons as a different type of lesson where there is more than one student at the same time.

Four of the teachers work at institutions where they must cooperate with teachers who teach other subjects to their students, such as musicianship, music theory, chamber music or choir. Just one of the teachers works at his private studio, although his students attend other music lessons at school, including orchestra, piano and music theory. Teacher TTM1 also teaches advanced students as well as violin pedagogy at the University. However, all his students who participated in the study attend lessons with him either at a private music school or at a special programme for young violinists at a music college.

All teachers work with beginners and most of them do so also with intermediate level students. Both teachers who work at the Spanish music college, as well as the teacher who has his own private studio at the USA teach advanced students. However, this proportion differs from the levels of the students participating in the study. Since all of them were aged seventeen or under, none had started at the university when filling the questionnaire in. Twenty out of twenty-five are beginners, whilst three of them have an intermediate level and just two more were playing at an advanced level. Teaching is not the only musical activity for these teachers, as all of them are also active performers. They mainly perform sporadic gigs, although they also play in amateur and professional orchestras, as well as at ensembles and recitals with piano.

Teacher questionnaires

Motivation, memory, teaching procedures, assessment, classroom management and parents' involvement, among other issues, are treated in the questionnaire, reflecting diverse aspects of the teaching process. In the analysis below, teachers' answers are also compared to their students', offering both points of view of the same teaching experience.

Since this is the most heterogeneous group of teachers, it is not easy to find conclusions that are applicable to all of them. Instead, other parameters such as experience, background, musical education and type of institution where they work

have been considered, with the purpose of observing their influence in teachers' procedures and success.

1. Motivation

In spite of the differences that these teachers show in their background and their experience as well as working conditions, there is a connection among the answers given to some of the issues considered in this questionnaire. This connection is particularly revealed in the reasons that initially moved teachers into the teaching profession, as well as the reasons that they had by the time of filling in the questionnaire. Other issues show greater discrepancies. Especially remarkable is the fact that not all teachers felt supported by their institutions to the same extent. Finally, difficulties to motivate children differ among the five teachers also, although all of them declared they use a wide range of strategies.

Teachers were offered three possibilities to describe the reasons that moved them to move into the teaching profession, namely: 'I Loved teaching and children'; 'Good working conditions (salary, timetable, holidays)'; and 'It was the only work I found'. The first option, which is related to intrinsic motivation, was the most present by teachers, although the others options were also noted to be in their initial motivation. In fact, two of the teachers were more stimulated by the working conditions than for their love for teaching. Average marks for every option were as follows:

Reasons	Average mark
'I Loved teaching and children'	5.2
'Good working conditions (salary, timetable, holidays)'	4.2
'It was the only work I found'	2

9.1 Traditional teachers' reasons to start into the teaching profession.

Teacher TTM1 was clearly influenced by his love for children and teaching, whilst more than one factor are present in the rest of the teachers' motivation. Teacher TTM5 also states her love for teaching as the main motivational factor, giving it the maximum mark, although she also gave a high relevance to her working conditions when she decided to start teaching music. For teachers TTM3 and TTM4, working conditions moved them to become violin teachers. Both also mention their love for teaching, although not as the preferred factor. Teacher TTM3 also stated that teaching was the only work that he could find. Finally, teacher TTM2 marked with five out of seven both love for teaching and working conditions. Interestingly, four out of

five teachers marked with five the working conditions, and all these teachers started working at schools or conservatoires, whilst the teacher who only considered his love for teaching and children is the only one who started his teaching career at his private studio, where working conditions were harder and offered him less security from an economic point of view. This diversity of initial reasons to teach, that include both intrinsic and extrinsic motivational factors, differs from the reasons that the same teachers had to keep teaching by the time they participated in this study. Intrinsic motivation has been strongly developed in all of the teacher as it is reflected in their comments. Teacher TTM2 does not make any reference to working conditions as she did in the previous question:

> *Q.* Why do you teach music nowadays?
> *A.* Because I love music and I like helping others to discover it, specially if they are children (TTM2).

The same emphasis on enjoyment is made by teachers TTM3 and TTM4: 'I enjoy my job (TTM3); 'I enjoy it. I like children' (TTM4). Teacher TTM5 is the only one who includes a reference to violin teaching as her source of income. stating: 'I love it and it is also my way of living' (TTM5). Teacher TTM1, who indicated his love for teaching and children as the main reason to begin in the teaching profession, is the most passionate in his comments, considering teaching not only as a job but as a personal philosophy that has a decisive influence in his life, stating: 'Because it is a way of life' (TTM1). This evolution in teachers' reasons to teach are reflected in the following question, 'Do you like teaching?' as the average mark of 6.8 suggests. The same passion is shown toward playing music and listening to classical music periodically, as is reflected in an average mark of 6.8 in both the following questions:

> *Q.* Do you enjoy playing music?
> *Q.* I listen to classical music (one hardly ever – seven everyday).

Teachers' perception of the support received from their institutions differs and might be related to their prestige. Those teachers with the most successful careers considered this support as 'Very good' whilst for the other teachers it is just 'Good' or 'Average'. This question is not applicable to teacher TTM4, as he teaches at his independent studio. All four teachers who work at music centres stated that they involve their institutions in the activities that they organise. Two of the teachers related this involvement to logistic coordination of events, either because they need to use facilities that are shared by other teachers or because those events are

organised by the institution and there are several teachers involved. Teacher TTM2 feels that institutional involvement is necessary as she considers she is part of a common music project. Teacher TTM5 makes references to the fact that the concerts that she organises are open to external audiences, so it is supposed that the institution must coordinate this, stating: 'Because we invite other children and parents to attend our recitals and concerts' (TTM5). Teacher TTM3, who works at a conservatoire, finds this institutional involvement essential, as there are a high number of teachers working at the same building and they organise plenty of activities every academic year. All these activities are reflected in a common annual project. Similar thoughts are expressed by teacher TTM2. Teacher TTM1 described the logistical support that he receives from his institution for every event that he organises: 'When I run activities they coordinate everything, establish the date, do the brochures, look for a venue and programmes, etc. Sometimes it is the institutions that suggest activities to us' (TTM1).

The frequency with which they meet other teachers who teach other subjects on music to the same students is 'Termly' for three of them and 'Monthly' for another. However, one of the teachers clarified that this frequency can be higher depending on every particular case:

> *Q*. The frequency you meet the other teachers who teach your pupils is (never-1/yr-1/term-more frequently).
> *A* Once a term (sometimes more often depending on every child and every situation) (TTM1).

Two of the teachers stated that they do not cooperate with other teachers. The other three teachers base their cooperation on different issues, going from joint assessment to coordination of the repertoire and work with accompanists: 'I programme activities next to the person who teaches the group lessons at the music school. At the college I constantly work with the accompanist' (TTM1); 'Programming a common repertoire in order to make easier the goals achievement process. Reinforcing our work in order to improve possible faults' (TTM2); and 'We usually make comments on the pupils we have in common' (TTM3).

All the teachers stated that they invite parents to participate actively in the teaching process. This parents' involvement includes attending the lesson and participating in the daily practice for four of the teachers. However, just two of them stated they meet their pupils' parents weekly. Two of the teachers have these meetings once a month, whilst for teacher TTM2 this happens every term.

Conversely, after observing this teacher's lessons, it could be appreciated that parents were present at all times.

All teachers ask their pupils' parents to check that children practice on a daily basis and three of them also involve parents in the organisation of musical events such as concerts and workshops. Other comments on the way parents support their children include encouraging them to practice and to listen to music, checking that they practice what they have been asked to and even cooperating as accompanist if they are professional pianists:

> *Q*. Do you invite parents to get involved in their children's musical process?
> Q. If so, what do you ask them to do?
> *A.* Some parents are professional musicians and the play the piano at concerts and workshops (TTM1).
> *A*. To positively encourage their children to keep playing music (TTM2).
> *A.* To check the notebook; to encourage children to play at concerts, listen to music, go to concerts, etc. (TTM5).

When meeting parents teachers seem to feel comfortable although two of them showed a certain degree of tension. In teacher TTM2's case this tension is more notable if she has to talk to a big group of parents, saying that 'Especially at the beginning. I do not like talking in front of an audience, if they are a big group)' (TTM2). Two of the teachers, who have more than twenty year teaching experience, stated that they do not make any preparation before a parents meeting. The other teachers have some thoughts previous to meeting parents and two of them note some ideas down. There is no connection between these habits and other factors such as the level of expertise, success or the type or working conditions/type of institution. After parents meetings teachers react more homogenously, as all of them reflect on the meeting and two of them take some notes as well. Particularly interesting is a final comment made by teacher TTM5 in which she expresses a high level of frustration due to the lack of cooperation and support that she perceived from colleagues, parents and the institution she is working for: 'My teaching practice is usually influenced by the conservatoire where I am teaching every year. I am not civil servant and, even if I try to get fully involved every year, it is difficult for me to develop some activities because of lack of support, fellowship, bad atmosphere, old fashioned ideas, space and material restrictions, disillusionment because of children, parents and colleagues' bad habits. And I would like to avoid all of this, but I think this is unavoidable in the end' (TTM5). She works at a conservatoire where some of the

teaching staff got a permanent position, whilst some of the teachers move to other conservatoires every year and, according to her, they do not get fully involved as they do not feel they are part of a long-term project. Teachers from other small conservatoires, where working conditions are similar, also share these thoughts about the consequences that continuous changes of teachers provoke in the average level of the students, as well as on their low criteria. In private conversations they stated that their students' previous teachers preferred to avoid troubles with parents and children. As a result students frequently passed exams easily and were promoted to higher levels with poor technical and artistic skills as well as lack of references.

All teachers perceive a high level of motivation from their pupils. This is indicated with an average mark of 6.2 to the question: 'Your pupils are highly motivated to attend your lessons' (one - completely disagree - to seven- completely agree). However, notable differences can be found in how easy or difficult teachers find it to motivate their pupils. On the one to seven scale, all five teachers chose different marks to indicate the difficulties they have. No connection was found between expertise, experience, age, sex or working conditions and how difficult is for teachers to enhance their students' motivation. Answers were more homogeneous when teachers were asked about the strategies that they use to motivate their pupils. They were given the following five options: 'I try to be funny and to make jokes'; 'I encourage them to persevere in order to succeed'; 'I transmit them my love for music'; 'I organise concerts'; 'I encourage them to socialize with other peers'; and 'I involve their parents and families in the educative process'. Interestingly all of them marked all the options with just one exception, as teacher TTM1 did not include making jokes and being funny among the strategies that he uses.

Some contradictions can be found when comparing answers in this questionnaire with those given in the general questionnaire that also includes some questions on motivation. Four out of five teachers stated that they are funny and make jokes as part of their strategy to motivate pupils. However, three of them consider that their pupils see them as serious teachers. Teacher TTM3 stated that he enjoys teaching and uses a wide variety of strategies to motivate his students. He also perceives that that his students are highly motivated. However, he also experiences a high level of boredom when teaching. Behind these answers it should be appreciated that teachers in this group are enthusiastic and committed. They try to get the most from their students although they also feel certain levels of frustration when dealing with

certain situations, for example, with parents, students, colleagues and the academic authorities.

Teachers were asked several questions in order to prompt thoughts about how they think their students perceive them. All of them tended to use high marks for most of the options offered. On the one hand this can reflect a high level of self-esteem and passion when teaching but, on the other hand, such high marks in some options may reveal a contradiction.

Teachers in this group claim that they enjoy teaching. They revealed this fact in their marks that showed the highest average among all the questions about their self-perception (6.4). They also consider themselves to be highly passionate teachers, with all the marks being six or seven. However, and in spite of these high levels of enjoyment and passion, they cannot avoid certain negative feelings such as moderate levels of frustration and boredom. Thus, it is especially significant that teacher TTM3 indicated his level of boredom when teaching with a mark of six out of seven, which contrasts with his perception of himself as a committed and entertaining teacher. None of the two most successful teachers claimed they felt any boredom, although they sometimes experience moderate levels of frustration. This level of frustration is similar for all the teachers in this group, with no relevant differences among their marks, the average being 2.5.

In spite of similarities in the way teachers believe their students perceive them, their answers in the questionnaires also show some differences. This is particularly noticeable with questions about how serious teachers think they are. Successful teachers think that their pupils perceive their character as serious, as they indicated with an average mark of six. In contrast, the average mark of the other three teachers is 3.3, which might imply that creating a relaxed atmosphere is a priority for them. 'Committed', 'Adaptable to each individual,' and 'Demanding' are the adjectives that received the highest marks, with averages of six and the lowest mark being five. 'Peaceful' and 'Energetic' are both highly valued characteristics although, apparently, they represent opposite concepts. More consistent seems to be the fact that teacher TTM1 has the lowest perception of herself as an entertaining teacher and the highest as serious. In contrast, teachers TTM2 and TTM4 gave high marks to both adjectives, which might be considered incoherent.

2. Memory

All teachers claimed they ask their students to play from memory, although they differ in the frequency and the situations where students must do so. Further, all of them state that they give tools to their students in order that the latter can learn pieces from memory more easily. Additionally, all the teachers explained in the questionnaire how they check children are applying the strategies correctly. The variety and number of strategies differ among teachers, even among the most successful. Finally, some teachers made references in their comments to how movements and skills must be assimilated, and not just so in the pieces. Most teachers in this group differ in how often they ask their students to perform from memory. Teachers TTM1 and TTM3 are the most consistent as their students play from memory on a regular basis, including in lessons, exams and concerts. Teacher TTM1 commented that his students always play from memory. In contrast, teacher TTM5 only asks her students to play from memory at concerts but not at exams or at lessons. This is not consistent with her claim that she teaches her students how to enhance their memory and that she even checks during the lessons which strategies her students use to do so. Thus, it could be inferred that her students certainly play from memory at the lessons or, on the contrary, that they hardly ever play from memory, concerts included.

Teachers TTM2 and TTM3 reveal an intermediate position as they claimed to ask their students to play from memory at the lessons and at the concerts, but not at exams. Teacher TMM3 specified that it is not compulsory for his students to play from memory at the concerts, although they play from memory at the lessons on a daily basis. After checking the syllabus of the programmes where these two teachers work and, talking to the head of one of the projects, it was seen that students at the conservatoire must play from memory at least one piece at the exams and that they must pass this exam in order to proceed to the next grade (after grades four and ten respectively). Further, children at the music school have the possibility of doing the ABRSM (Associated Board of Royal Schools of Music) exams, in which it is compulsory to play all the scales from memory.

Teachers unanimously claim to teach their students how to enhance their memorisation skills as well as checking which strategies their students use to memorise pieces. All included comments in which they described the procedures they use in order to check this. Some of their comments are about helping students at the lessons without making any reference to the strategies or procedures they use. Examples include: ‘I ask them to show me at the lessons the strategies that they

have applied at home (and that I have already taught them)' (TTM1); and 'working on memorization techniques during the lessons' (TTM3). Other teachers are more specific and included details on how they enhance students' memorisation skills. For teacher TTM5 it is all about repetition, whilst teacher TTM4 combines slow motion repetition and listening - something that is also stressed by Suzuki teachers. He relates this slow repetition with the enhancement of muscle memory. Teacher TTM3 uses a combination of clapping, singing and miming, addressing notes, bowings and fingerings separately: 'Checking that they can sing the melody with the name of the sounds, clapping the rhythms, playing 'on the air' to see if they know the bowings, etc.' (TTM3). Besides these open comments, teachers were asked to choose, among several options, those strategies that they ask their students to use when memorising. These include: 'To listen to the recording'; 'To analyse the structure of the piece'; 'To divide the piece in small fragments'; 'To read the music score without the violin (on the bus, at a solitary walk, etc.)'; 'To imagine that they are playing the piece'; and 'To play the whole piece recreating performance conditions (with informal audience, concert dress, on stage, etc.)'. They also had the opportunity to add any other option that they may use.

Interestingly, the first three options (listening, analysing and dividing into small fragments) were chosen by 100% of the teachers. These also are the preferred options for most teachers in other groups, so there are no relevant differences in this aspect. Four teachers also chose other options. Two of them ask their students to imagine that they are playing and two teachers also find it interesting that children read the music score out of the practice room. This is in common with the other groups of teachers, except the Suzuki group, where just one out of five teachers claimed to ask her students to imagine that they are playing the piece. Finally, three teachers encourage their students to practice in front of an informal audience as a way to get used to public performances and avoid gaps in the memory provoked by stage fright. For this, Zweig and Suzuki teachers insist more on this aspect, as reflected by 100% of the teachers choosing this option. Two teachers included additional comments on the strategies that they use. For teacher TTM1, it is important that students know what he calls the 'skeleton' of every black spot in the piece, so they can understand how they can do technical work as well as practice steps that have been gradually sequenced by the teacher: 'I teach several steps to overcome every difficulty. They need to know the skeleton of every black spot and this is helpful in order to learn the fragment from memory' (TTM1). Teacher TTM4's comment is irrelevant in this context as he insists that he has already explained in a

previous question the importance he gives to listening and memorising pieces in sections: ‘I ask them to memorise in sections, to play slowly, I encourage them to listen to what they are doing’ (TTM4).

Regarding the memorisation of technical skills, teachers were asked how they give the information to their students. All claimed that they give examples, modelling the difficulty to be learned by the child. Most of the teachers prefer to give the students deep explanations, whilst teacher TTM1 prefers to be concise in his instructions. Teacher TTM3 is more specific in his answer and uses both short and deep explanations depending on every student: ‘Explanations and their level of detail depend on pupils' age and characteristics’ (TTM3). Teacher TTM4, who stated that the way he sends his instructions depends on what every student can do, also supports this idea. Teacher TTM1 shows a rich approach as he is the only teacher who made reference to some of the different types of practice described in the first section of this thesis, suggesting that he combines several in order to transmit instructions to the students more effectively:

> They have to do it in front of me, even in an embryonic form. 'Manual assistance' guiding their movements and transmitting sensations by touching them… It is important to guide children's movements as Alexander technique teachers do, but not manipulating their bodies. The idea is to check the pupil's general balance constantly. I am not manipulating, but transmitting my experiences by guiding their movements. (TTM1).

Finally, teacher TTM2 insists in reiterating concepts that have been commented upon previously, such as helping children during the lessons and asking them to reproduce movements in slow motion.

3. General questionnaire

This third questionnaire addressed several issues related to the way teachers approach the teaching profession. This considers aspects such as the teachers’ principles and the values they intend to transmit at their lessons, the way they organise academic and extra activities, the procedures they follow in order to assess their students’ progress, how they deal with disruptive behaviours and the strategies they have so they can keep a positive attitude in their students. Other issues such as motivation for external cooperation have also been addressed in this questionnaire. However, those answers have already been commented upon in the corresponding paragraphs, next to the answers on the motivation questions.

The first block of questions in the general questionnaire includes three about the benefits of playing the violin as well as the values that teachers try to transmit at their lessons and the resources that they use in order to achieve these goals. Benefits of playing the violin listed by these teachers fall under three general types. The first makes references to the influence of music in the overall development of the human being, stating: 'Playing an instrument helps to acquire values that are highly beneficial for that global personal development' (TTM1). The second refers to the development of specific skills, both physical and psychological, transferable to other subjects: 'More than the violin I would recommend learning music (any instrument), because its practice helps us to develop all our human capabilities, namely: physical, emotional and intellectual' (TTM2); and '…it increases concentration, it is very good for coordination…' (TTM3). Finally, a third point of view focuses on the recreational aspect of playing the violin and the wide repertoire at the disposal of performers so everybody can find pieces that can enjoy: 'It is fun … it has a wide and varied repertoire' (TTM3); and 'Because it is enjoyable' (TTM4). Interestingly, one of the teachers did not answer any of the questions in this block.

Teachers were asked about their habits in planning activities, programming the repertoire and the goals for their students, their skills managing the lesson time as well as their routines monitoring children's progress and their homework. Since four of the teachers work at conservatoires or music schools, they have to follow the syllabus determined by their string or violin department. However, two claimed that they adapt this syllabus to each student. Teacher TTM4, who works as a freelance teacher, does not depend on any music department and he gave the minimum mark to all the questions regarding the syllabus. The other four teachers claimed that they review the syllabus periodically in order to update it. Since teachers TTM1 and TTM5 stated that they do not adapt their syllabus to each individual it could be inferred that that they keep in mind what they expect from each individual and then adapt both the repertoire and goals mentally based on their own experience. This idea is supported by the fact that four out of five teachers claimed that they do not plan in writing the activities that they want to develop every year to help their students to reach their goals.

100% of the teachers answered 'No' when asked if they establish the same goals for all the children at the same level/age, showing flexibility and adaptability of their teaching to each individual, even if just two of them responded to a previous question that they adapt their syllabus to each student in writing. Teacher TTM1 supported this idea with the following comment: 'I believe in a personalized teaching, without

ignoring the benefits of establishing some consistent common goals' (TTM1). It is interesting to observe how in spite of adapting goals to each student, two of the teachers claimed that they do not inform their students about the goals that they are expected to achieve. A third teacher clarified that she only informs her students about short-term goals but not about the goals that they must achieve by the end of the academic year. This shows that just 40% of the teachers give their students a holistic view of the teaching process, including expectations and long-term goals. This does not seem to have an influence on their outcomes, as those teachers who inform their students about their long-term goals and update the syllabus in writing are not the ones with the most successful careers.

Teachers show some inconsistency in their answers when asked about how they manage lesson time. They were given the following three options: 'I usually need more time'; 'I usually finish before the established time'; and 'I usually finish all the programmed activities on time'. Teacher TTM1 was the only individual whose answers were clear and consistent, claiming that he usually needs more time to cover all the planned activities. The other four teachers contradicted themselves, selecting more than one option. For example, all of them affirmed that they usually cover all the programmed activities on time, and on the other hand they also claimed that they usually need more time. That could reflect that they in fact are punctual finishing their lessons even if they do not cover as many issues as they would initially like. The most surprising answers came from teacher TTM5, who marked five to seven all the above three options, which it is confusing as they are conflicting answers.

Finally, teachers were asked if they keep records of their lessons and if they encourage their students to put into writing the activities and goals that they must complete at their home practice. Again, two teachers claimed that they take daily notes of every child's progress. It is interesting to observe that TTM3 responded positively to all the questions regarding the habit of noting down his work, including the syllabus and its updates, children's notes and homework. None of the other teachers showed such consistency in their procedures although no relationship between this habit and other factors such as experience and professional success could be found. More consistent is that fact that 100% of the teachers ask their students to keep records of their homework. Four out of five ask their students to note down the goals that they are expected to achieve by the following lesson and, again, four teachers ask children to note down the procedures that they must follow when practicing at home.

All the teachers claimed to teach their students how to be self-sufficient and all gave three examples on how they get this. Teacher TTM1 establishes a transition between the first stage when parents attend the lessons and practice with their children at home and a second stage when children attend the lessons and practice by themselves. He also prepares for this independence by asking the children to elaborate their own strategies in order to overcome the difficulties that they find in the pieces, saying: 'They need to prove that they not only use the strategies that I have tough them but they are also able to create their own strategies. At a certain age I ask the parents to stop attending the lessons, assuming the risk that the efficacy can be affected for some weeks' (TTM1). Teacher TTM2 has an analytical approach, emphasising to her students how important it is for them to be aware of how some procedures can be applied to similar fragments in different pieces: 'General exercises that can be applied to similar fragments (rhythms…), memorisation strategies and list the priorities to reach technical skills and musical goals' (TTM2). For Teacher TTM3 it is important to develop in children the sense of a constructive self-criticism so that they can observe their own work impartially. The best way for this teacher to improve children's efficacy is to imitate practice conditions at the lessons in order that he can check how his students do at home: 'I try that the lesson looks like a practice session, work on observation and then develop constructive criticism (looking for solutions)' (TTM3). Teacher TTM4 introduced two interesting ideas. On the one hand he provokes children's feedback by questioning them about problems that they might have. On the other hand he uses sight-reading at the lessons as an activity that lets him observe which are the procedures that children use when learning a new piece and which are the difficulties that they find: 'I try that the lesson looks like a practice session before working on observation and then developing constructive criticism (looking for solutions)' (TTM4). Teacher TTM5 uses homework notebooks as a tool to help students at their home practice. She asks for parents' cooperation in order to listen and assess their children. She also challenges her students by organising practice competitions: 'They have a notebook where to note their homework down, I note it down in cards, but I do not speak about goals and then we have practice competition and evaluation in front of their parents' (TTM5).

Most teachers in this group opt for an on-going assessment, as shown by the fact that four of them claimed that they assess their students after every lesson. The same four teachers are in favour of auditioning children the first time they meet so they can evaluate the initial weak and strong points before establishing a plan tailored to each individual's needs. Teachers who work at conservatoires are officially

requested to evaluate their students at the end of every term, including at the end of the academic year. However, only two of the teachers stated they assess their students at the end of every term and one of them also claimed to do it just at the end of the academic year. A similar situation can be observed regarding the exams, as just teacher TTM1 indicated that he assesses his students after exams, even though it is compulsory for all students at conservatoires to do exams in order to advance to the next level. Teacher TTM4, who works at his private studio, showed preference for assessing his students permanently, namely: after a first meeting, after every lesson and also after children's concerts. The most successful teachers also chose this latter form assessment. Interestingly, teacher TTM1 also made reference to how important is for children to be trained in self-assessment as a tool to improve their self-efficacy and confidence: 'Evaluation is daily with young children. For the eldest, the evaluation takes place after every concert or exam. I try to encourage self-assessment on the eldest students' (TTM1).

Teachers were asked about what they assess and they were given the following options: 'Musical expression'; 'Technical skills', 'Practice at home' and 'Attitude'. All of them chose all the options, which shows a holistic approach to the assessment process. Three of them added some more options also. Teacher TTM4, for example, focusing on technique, teacher TTM3 on concentration and teacher TTM5 indicating aspects about children's motivation and their progress. The preferred way for these teachers to assess is by informing pupils and/or their parents orally. At conservatoires teachers have to fill in a report card periodically. Three of the teachers who work at conservatoires or music colleges indicated that they use marks when filling in the report cards. Two also added comments in writing. However, teacher TTM2, who also teaches at a conservatoire, did not mention the use of marks or writing comments for her students.

In a previous paragraph it was stated that only teachers TTM3 and TTM4 claimed to show their students the goals that they are expected to achieve by the end of the academic year. In this section of the questionnaire teachers were asked if they inform their pupils beforehand about their criteria on which they are assessed, which might imply expectations and goals. However, only teachers TTM1 and TTM5 stated they do this, which might be contradictory with teachers' previous answers. Teacher TTM2 claimed she is not aware to what extent she clearly informs her students about the criteria she will follow when assessing: 'I am not sure. We talk a lot about the whole learning process' (TTM2).

Students seem highly motivated to attend lessons with the teachers in this group. Most teachers do not show any problems in keeping students under control, although they show a certain level of frustration because of the difficulties that children have in practicing daily and efficiently. Teacher TTM5 was the only one showing particular issues controlling her students' behaviour. She relates children's behaviour to how kind or stern she is at the lessons, saying: 1. 'I am kind with everybody. There are basic behavioural rules'. 2. 'I usually keep them busy all the time so they keep quiet.' 3. 'It is more difficult for me when I teach groups of 3 pupils, as they are sometimes very unquiet. But I finally turn serious and get then quiet' (TTM5).

When asked how they keep any situation under control teachers gave several answers that make reference to five different issues. The main aspect that teachers consider important is respect for their students. This respect includes an effort to understand children's points of view and to pay attention to each individual so they feel they are part of the group: 'From the understanding, I try to assume my role' (TTM1); and 'developing the individual inside the group… Everybody is responsible with the others' (TTM3) are comments that illustrate this. For teacher TTM4, making children aware that they are respected is as important as respecting them: 'Helping them to feel they are respected (They respond on the same way)' (TTM4). Teachers TTM2 and TTM5 consider it necessary to establish behavioural rules as a way to clarify what teachers expect from them. These two teachers are also in favour of modelling a quiet and kind attitude as they believe that children copy what they see from their teachers, saying they do so: 'With a quiet attitude, avoiding a loud tone of voice' (TTM2); and 'I am kind with everybody' (TTM5). Another teacher prefers to motivate his students by choosing attractive activities and repertoire that catch their interest. Teacher TTM5 claims that a high level of activity is also related to a quieter students' attitude: 'I usually keep them busy all the time so they keep quiet' (TTM5). When these strategies do not work as expected, teachers opt for different approaches. Teacher TTM4 prefers to inform parents about their children misbehaviour whilst teacher TTM5 seems to keep situations under control by changing her kind attitude and turning increasingly strict: 'It is more difficult for me when I teach groups of three pupils, as they are sometimes very unquiet. But I finally turn serious and get them quiet' (TTM5).

Student questionnaires

This group includes twenty-five students from five different teachers. Their ages range from six to seventeen, the average age being nine years and nine months. On

average they have been studying the violin for a period of time spanning one to thirteen years (average 3). Consequently, students present different levels of expertise, although most of them are in the first stage of the learning process. Twenty students are considered beginners; three of them showing an intermediate level and two of them are advanced. All students but one have been studying with their present teachers for at least one year, which allows them to be familiar with their teachers' procedures. One of the students has only been studying for a term with his present teacher whilst the average time for all the students in the group is two years.

Students in this group attend violin lessons in three different types of institutions, namely: conservatoire, music school and private studio. Each institution has different regulations that affect parameters, such as pupils' entrance age, subjects that they must study and presence or absence of exams. New applicants at the music studio can be as young as four years old, whilst they must be eight at least in order to be accepted at the conservatoire. There is a higher flexibility at the private studio where age is not such a restrictive parameter as it is at the other music centres.

Just one of the students does not attend any other music lesson apart from violin. All the other children claimed to attend from one to six weekly music lessons including practical and theoretical subjects. Children who study with the two most prestigious teachers are also those who study a higher number of other music subjects in addition to the violin. The most usual subject is "solfège/music theory", which was chosen by twenty students. Interestingly, none of the children who attend violin lessons at the private studio claimed to attend lessons on solfège or music theory. Three of the four students at this studio play at a school orchestra and attend piano lessons, whilst the fourth is the only student in the whole group who claimed not to attend any other music lesson.

At the conservatoire, children begin attending a weekly lesson on solfège and music theory alongside the violin lesson. In later years the number of subjects studied increases, beginning to include theoretical issues such as analysis, harmony or history of music and also performing subjects, such as chamber music or orchestra. Other subjects mentioned by the students include Willems[5], choir, and musicianship. It is interesting to observe that just six students claimed to attend group lessons and, again, most of them (two thirds) study with the most experienced teachers. However, the fact that the other two children study with the same teacher at a conservatoire and the other three children who study with this teacher also show

5 Pedagogical approach to music education created by Edgar Willems in the mid 20th Century.

a similar age and level might imply that all of them attend group lessons as they must follow the same regulations.

All pupils live in areas with access to concerts and cultural activities. However, whilst those attending lessons at the private studio in the USA live about thirty minutes by car from one of the most important cities in the country, teacher TTM1's pupils live in the heart of a big city with direct access to concerts, museums and exhibitions. The other three teachers and their students live in medium-size cities, with populations ranging from 200,000 to 700,000 habitants. These cities have local theatres and concert halls with yearly cultural seasons, although international artists do not perform there as frequently as in other large cities. Attending lessons at a conservatoire allowed students to be part of a community in which they are in contact with students of different levels and who play a variety of instruments. These conservatoires regularly organise concerts and workshops that enrich the experiences of all the members of the educative community.

From an economic point of view, lessons at the conservatoire are almost free as students need only pay some administrative fees at the beginning of the academic year. This means that the students can be drawn from a more diverse social background than in the private studios. At both private studios (in the USA and Spain) students must pay all tuition fees, which means they usually come from families with a medium to high socioeconomic status.

2. Memory

A first analysis of the answers given by the students to the questions on memory shows some tendencies in their habits and procedures. In spite of the differences in students' education, country, institutions and background, they show numerous similarities. Generally, they claim to memorise pieces easily and in a wide variety of contexts. They also enumerated numerous strategies that they use when trying to learn a new fragment or piece from memory. Finally, they gave reasons similar to the students in other groups when asked about their reasons they can suffer memory lapses when performing at a public concert. The ways they suggested they could overcome these lapses are also similar to other students. Consistency in habits and procedures, as well as no relevant differences across the groups, are the general characteristics that they show in their answers to this questionnaire. However, some particularities are also present and discussed in the next paragraphs.

Students were given five options to explain in which contexts they perform from memory, namely: ‘At concerts’; ‘Exams’; ‘Lessons’; ‘Never’; and ‘Others’. Lessons and concerts are the popular options, chosen by twenty-two and nineteen students respectively. Almost half of them also claim to play from memory at exams, although this is not representative of their preferences but of their particular situations as numerous students had not passed any exam by the time of filling the in questionnaire. Seventeen students included comments under the “Others” option. Basically these comments make reference to home practice, whilst some of the students were more specific, claiming that they play from memory weekly. However, two comments showed different points of view. On the one hand, student TTM2P1 showed a preference to learn from memory pieces that he likes: ‘Pieces that I love playing’ (TTM2P1). On the other hand, practising from memory just before a concert helps TTM1P1 to reinforce his confidence at the public performance, he saying that he does so: ‘Before every concert in order to remember the piece before the performance’ (TTM1P1).

Students show no particular problems memorising pieces. They were asked to use a one to seven scale to indicate how easy it is for them to perform from memory, where one represents severe difficulties and seven indicates that they memorise the repertoire more easily. The average mark is 5.5, whilst the lowest is four. It is interesting to observe how most of the lower figures belong to children who study with the same teacher (TTM3). The fact that this teacher works at a conservatoire in Spain does not seem to be a conditioning factor, as teacher TTM5 also works at a similar institution and her students consistently show higher marks in memorisation. As mentioned above, one of the most relevant aspects of this group of students is that, in spite of the diversity of their educational contexts and their teachers’ backgrounds, they show a rich variety of resources when trying to learn their repertoire from memory. They were offered a list with seven options, namely:

- I listen to the recording.
- I divide the piece in small fragments.
- I read the music score without the violin (on the bus, walking, etc.).
- I imagine I am playing the piece.
- I play the whole piece recreating performance conditions (with informal audience, concert dress, on stage).
- Others.

All options were chosen by at least eight students and every student chose an average of two strategies, in a range spanning one to seven. Two students marked just one strategy whilst all the others chose at least two. Students who claimed to memorise more easily are not necessarily those who claimed to use a higher number of strategies, as this is the case of teacher TTM3's and teacher TTM5's students. Children who study with teacher TTM1 and teacher TTM2, who are the most prestigious teachers, show more consistency as most of them claim to learn pieces from memory easily and to use a higher number of strategies than the average. The high number of students who claim to use strategies not involving the use of the violin is especially remarkable. Fourteen students chose 'I read the music score without the violin (on the bus, walking, etc)' and eleven claimed to imagine that they are playing the piece. Both figures are again higher among teacher TTM1's and teacher TTM2's students. The most chosen options are: 'I divide the piece in small fragments'; and 'I listen to the recording', showing similar percentages to other groups of students. Finally, analysing the structure of the piece and playing the whole piece, recreating performance conditions, was chosen by eight students. Eight students included additional comments regarding the way they memorise pieces. Four comments make reference to repetition and two more to the benefits of singing the piece. One more comment could be considered a reiteration of one of the options as it implies the memorisation of fragments: 'Little by little I play what I remember without looking at the book' (TM3P4). Teacher TTM2P2 focuses her attention on fingerings and student TTM1P1 finds it helpful that the student understands the relationship between what he or she must play and the piano part: 'I learn from memory the fingerings that I must use' (TTM2P2); and 'I ask the accompanist to play the piano part for me so I can remember how my part fits into the piece' (TTM1P1) illustrating this.

When asked about the reasons why they suffer memory lapses at public performances, six students did not give any reason. Two of these students claimed not to have any problem performing from memory; whilst two more answered 'I do not know'. A fifth kept this question blank whilst the last answered 'N/A'. This may suggest that she has no problems in remembering the music, although other personal reasons could be behind this answer. The other nineteen students enumerated different reasons why their memory could fail. These reasons have been classified in four groups, namely: external distractions, elements of the music and those interferences whose origin is in the performer. Thirteen comments referred to distractions external to the performer. Nine of them mentioned the audience and they

mostly make reference to the noise that can occur during the performance. However, some comments refer to other elements, such as cameras filming, flashes or the mere fact of feeling observed: 'Noises in the audience (crowded room, people moving, cameras…). In general, any aspect that differs to what I am used to at concerts and recitals.' (TTM2P1); and 'People watching you or disturbing' (TTM4P1).' One of the reasons given by teacher TTM3P4 may infer that she refers to problems focusing her attention when practising more than at a performance. Although her answer is not clear it might make reference to external noise coming from adjacent rooms where other players are also practising: 'I get distracted by people who play different lessons that the one I am playing' (TTM3P4). Some elements of the music can also disturb performers, for example, when there are changes in tempo or there is a new section of the piece: 'I forget to play notes 'a tempo' and get confused with different fragments' (TTM5P5). The last group of factors that might disturb students when performing from memory include those originating in the performer himself/herself. Most of these comments refer to stage-fright and nerves, although there are some others that include an excess of responsibility, lack of confidence, shyness, mistakes made by the student or absentmindedness: 'My mind just plays out (TTM4P3); and 'Because I get nervous (TTM5P3) revealing this. Particularly interesting is the comment made by student TTM3P6 who refers to the pressure that she feels as she considers pleasing the audience as her responsibility. In this case, it is the performer herself who creates an obstacle independently of the behaviour and attitude of the audience, saying they find it difficult to: 'Please the audience' (TTM3P6).

Students expounded twenty-one ideas about how they could improve their memorisation skills. Six students did not offer any idea, either keeping this question blank, writing 'N/A' or claiming a lack of ideas: 'I do not know' (TTM2P1). The above-mentioned ideas have been classified in three groups. Comments in the first group make reference to increasing the amount of practice. The second group also includes strategies already included in a previous question and the last includes two more comments. Fifteen students revealed their belief that the most effective way to learn the repertoire from memory is through more practice. In some cases students made reference to the number of physical repetitions as well as the length of the practice time, saying they need to practice 'more hours' (TTM3P6 and TTM4P1) and read 'it [the sheet music] many times' (TTM3P2) as well as 'practising more than what I am doing at home nowadays' (TTM5P5). One of the students made reference to the process of recovering information that has previously been stored and relates this to

the revision of repertoire already learnt, saying: ‘I frequently review those pieces that I have previously learned so that I do exercises to recover data that have already been stored in the memory’ (TTM2P4). In many other cases, students related improvement of memory skills to memorising more frequently: ‘Practising longer from memory (I just practise from memory sometimes, not all the time)’ (TTM1P1); ‘If I memorize more I will do it better’ (TTM4P2); and ‘Practising and memorising songs more often’ (TTM4P4). Three students also preach the virtues of practising every element of the music separately. This includes singing the notes and working on the rhythm: ‘Practicing the rhythm, singing’ (TTM3P3); ‘Using solfège’ (TTM3P5); and ‘Singing the music using solfège’ (TTM5P4). In the second group of strategies that can be observed some options that were already offered to the students were mentioned when students were asked about the strategies that they use in order to learn pieces from memory. These options include listening to the recording, dividing the piece into small fragments and using one’s imagination: ‘Listening to the recording more frequently and dividing the piece in little fragments’ (TTM1P3); ‘Listening to the recording more often’ (TTM1P4) ‘Imagining in my head before I play it’ (TTM4P3). Interestingly, these students already claim to use these strategies. The only exception is teacher TTM1P3 who did not divide pieces into small fragments, so students seem to advocate an increase of their practice time, more than a change in their procedures. Two more comments were included in a third group. For student TTM3P1 capacity for memorisation is related to concentration, particularly: ‘Improving concentration’ (TTM3P1). Student TTM3P4 defends the use of technological gadgets as a way to improve her capacity for memorisation in general, which in her opinion will have a positive impact when trying to learn pieces from memory: ‘I should play more the game 'DS Brain Training', particularly the mini-game 'The Memory’’ (TTM3P4).

Finally, students were invited to add any comment that they considered appropriate and ten of them did so. Some comments emphasize how important it is to play from memory while others stress the benefits that students obtain when learning the repertoire from memory. A third group of comments insist on some other strategies that can make the memorisation process easier. One of the students considers memory in a holistic way, claiming its importance for humans in general: ‘We use memory always, even with a simple calculation it is already activated. Memory is sensitive to any minor memorization. Memory is important in the human body’ (TTM3P4). Student TTM3P3 relates the importance of playing from memory to the freedom that it offers to performers so they can focus in other tasks: ‘I think it is

very important to learn the piece from memory, so you can better look at the bow and not so much at the fingers' (TTM3P3). For student TTM1P3 learning the repertoire from memory is essential, as it is only after memorising a piece that he considers it has been learnt: 'I only consider that a piece is learned just once I know it by heart' (TTM1P3). For student TTM3P1, memorising pieces has a positive impact on her motivation, because of the feeling of achievement: 'I get very happy once I learn a piece from memory' (TTM3P1). Other benefits include the fact that learning from memory makes future memorisations easier. This student also considers it beneficial when she does not need to take any books with her: 'This way we do not need to carry any books, and this way we have more memory' (TTM3P5).

3. Motivation

Students' reasons to learn music have been addressed in this questionnaire along with other issues regarding their habits and attitude, such as how frequently they listen to music, their feelings at the violin lessons or the support they receive from their parents and teachers. Answers are consistent for most of the students, and show students seem to be intrinsically motivated to learn music as well as feeling a strong support from their parents and teachers. This adherence to music is supported by 100% of the students claiming that they are not going to give up in the future. It is especially remarkable the fact that almost half of the students want to be professional performers or music teachers in the future. The main discrepancies are found with regards to students' feelings before the private lessons, as some of them claim to feel indifference or negative feelings, such as: 'Worried'; and 'Stressed and nervous'. Nonetheless, most of the answers show a positive attitude toward violin lessons.

The first two questions aimed to observe differences and similarities between the reasons that pupils initially had to begin learning how to play music and the reasons that they had by the time of filling the questionnaire in. The factor that made most children come into learning music was their attraction to music itself. The option, 'I like music', was ticked by twenty-one students. The influence of relatives and friends was also an important issue for a third of the children. Eight claimed that it was their parents' decision as to why they began learning music. Nine also considered influential the fact that friends or relatives already played music. Students were given the opportunity to add any comment that they considered appropriate regarding their motivation to start learning music. Two of them corroborated their love for music. TTM5P3 claimed to feel attracted by the Yamaha method - that which he was practising for four years before he started with the violin. Finally, student TTM5P6

stated that she had been learning music from an early age: ‘I already studied music from my early childhood’ (TTM5P6).

The next question in the questionnaire addresses students’ reasons to keep learning the violin by the time they were filling the questionnaire. Most of them gave similar answers. The main reason to keep playing the violin was again that they liked playing music, followed by influences from their friends and relatives as well. However, there are some differences that are especially remarkable. A slight move from extrinsic to intrinsic motivation can be observed, as shown in the fact that the number of students that claimed to liked music went from twenty-one to twenty-four. External influences also diminished slightly, as is visible in the case of those children pushed by their parents to practise music who moved from eight to six. Those who were influenced by their siblings or relatives who also played music also moved from seven to six. On the contrary, the wish to be a professional musician in the future moved from one to three.

The fact that three students indicated this last motivational factor (the wish to be a professional musician) is in a certain way contradictory with students’ answers to the next question, namely: ‘Which do you think your relationship with music is going to be in the future?’ In this case, the number of students who thought they would make from music their living was twelve. Six of them affirmed that they would be professional performers, as the other six thought that they would be music teachers. Nevertheless, two of these children clarified that they are too young to know this for certain. In fact, another student claimed that she did not know what her relationship with the violin would be in the future. ‘I do not really know yet’ (TTM1P5).

Students’ intrinsic motivation is confirmed by their answers to three questions about their likes on music. They were asked to use a one to seven scale to express how much they like playing music. The average mark was 5.87 and it is interesting to observe that the only student who marked this question with ‘1’ is he who claimed that his reason to learn how to play music is because he loves the violin. Possible explanations to the fact that this student claims to love the violin but does not like playing music are the possibility of misunderstanding how to use the scale or that the child is trying to articulate that he does not like practising. It is also remarkable that three more students who love music and playing claimed that they listen to classical music occasionally or hardly ever. Apart from these exceptions the rest of the students claimed that they enjoy playing music and they frequently listen to music, both classical and non-classical. Most students also stated that they enjoy practising.

There are just two exceptions, and in both cases from students who also claimed that they listen to classical rarely.

The four questions in this block invited students to express their feelings about the lessons and public performances, as well as how they perceived their talent and their effectiveness at practising. It is in how they feel before the lessons where students showed the biggest discrepancies, as two thirds of them claimed they have positive feelings whilst the other third chose options with neutral or negative connotations. They were offered five options to describe these feelings, namely:

- Stressed and nervous.
- Worried, indifferent.
- Quiet and happy.
- Excited and very happy.

The first two options were chosen by four and three students respectively. No connection can be found between these answers and the students' age, music centre, sex or level of expertise. The only remarkable issue is that three of these children study with teacher TTM3 who works at a conservatoire. No relationship between negative feelings and studying at a conservatoire can be observed after comparing the answers of the students of teachers TTM3 and TTM5, who both work at a conservatoire. It could be inferred that teachers may have a strong influence on their students' feelings. This is also consistent with the fact that seven out of nine students who learn with the two most successful teachers claimed that they have positive feelings before the lessons.

None of the students seemed to be particularly concerned about playing in front of an audience. In a one to seven scale the average mark was 6.2 when asked how happy they are before a public performance. The high average of 5.6 also showed that they feel that everything is under control. Students' self-esteem also is highly positive. Their average mark to describe how talented they think they are in comparison to their peers is 5.4. Most of them also feel confident in how efficient they are at practising. Just two children marked their perception of this efficiency at three, the average mark being 4.9 which also shows a high self-awareness of their practice skills.

Questions about parents and teachers' support gave students the opportunity to reflect their perceptions on this issue. This group of students is one of the most

aware of their parents' support. They were offered six options to describe this support, namely:

- Economical.
- Driving you to the lessons.
- They attend the lessons and take notes.
- Helping with the daily practice at home.
- Praising you and recognising your efforts.
- They are always willing to listen to you.

One more option was to indicate that they do not receive support at all, although none of them chose this option, which shows that they are aware of their parental support and, indeed, the majority of the students chose options positively related to this support. All claimed that their parents are always willing to listen to them and seventeen students stated awareness of their parents' economic support. Those students who did not choose this option declared that their parents attend the lessons and in most cases drive them to the lessons, which shows that children are more aware of those forms of support that they can physically see, apparently forgetting that their parents are paying their tuition, instruments and other expenses. Seventeen students also claimed that their parents attend their lessons and take notes. Seven out of eight students who did not chose this option study at conservatoires, and it is interesting to observe that 100% of those who study with the most prestigious teachers confirmed that their parents attend their lessons. One of these students, aged seventeen, stated that his parents used to attend the lessons until a certain age: 'The first 10 years, not know' (TTM1P3). One of teacher TTM5's students also clarified that their parents do not always attend her lessons, which might imply that they do it when they want to discuss any particular issue with her teacher: 'Just when needed' (TTM5P2).

The number of students whose parents help them practice at home is very similar, as nineteen students chose this option. Again 100% of the students who study with prestigious teachers claimed that they receive their parents' support, whilst most of the students who do not receive this support study at conservatoires. Most parents meet their children's violin teacher frequently. Four of them do it termly whilst twenty more do it every week as they attend the lessons. Since seventeen students claimed that their parents attend the lessons and take notes, it could be inferred that three of these parents just go with their children and observe, assuming a passive role at the lessons. One of the students commented that although his parents do not attend

every lesson because of his age, they still meet his teacher periodically as they are friends: ‘More than once a term. My parents and my teacher are friends’ (TTM1P3).

Another issue on which all students agreed is that of teachers’ support. The average mark of 6.6 shows that all of them perceive a high support and they also included forty-five comments to describe those aspects of their teacher’s teaching style that they. These comments have been classified in three groups. Most of them make reference to the teachers’ kindness and motivational skills. The second largest group include comments praising teachers’ knowledge and teaching practice. The third group includes just four comments praising teachers’ perfectionism and discipline: ‘He is a perfectionist and never leaves things half way done’ (TTM1P1). Three of the comments in this last group belong to students of the most successful teachers, which shows that efficient teachers know how to ensure that their students appreciate values such as discipline and perfectionism, usually neglected by most students in favour of other characteristics such a kindness and patience. In the first group, most comments include terms such as ‘kindness’, ‘love’, ‘patience’, ‘sweet’, ‘happy’, ‘funny’ and ‘lovingly’. Some students also appreciate that their teachers recognise their efforts: ‘He recognize when I am doing something well’ (TTM3P3); ‘she rewards effort’ (TTM5P2). Supporting students when they face difficulties is also appreciated in some comments: ‘He supports me even if I make mistakes (TTM1P4); and ‘She is understanding’ (TTM5P3). Student TTM5P1 made an interesting comment showing how important rewards are for some students: ‘She has cool stickers’ (TTM5P1). Most of the eighteen comments that make reference to teachers’ knowledge and good teaching practice are not specific and merely show students’ agreement and comfort with their teachers’ procedures: ‘He teaches very well’ (TTM3P2); ‘He teaches well’ (TTM1P5); and ‘She teaches well’ (TTM5P4). In other comments, students appreciate that their teachers gave them tools to overcome difficulties, helping their progress: ‘He shows me good exercises to learn my pieces’ (TTM1P5); ‘She perfectly knows which the difficulties are and how to solve them’ (TTM2P2); ‘He always teaches me how to play music correctly’ (TTM4P3); and ‘He helps me to play the violin better’ (TTM3P1). Additionally, children also appreciate the clarity of the explanations: ‘Her explanations are clear’ (TTM2P3). Finally, students also appreciate that teachers choose an attractive repertoire, taking into account children’s preferences and interacting with them: ‘He plays duets with me (TTM4.4); ‘She teaches enjoyable pieces (TTM5P6).

Conclusion to chapter nine

In this chapter, I have reported my own research into the practices of traditional teachers and their students. The group of traditional teachers is the most heterogeneous among all the groups of teachers included in this research. This is due to their backgrounds, the contexts in which they teach, their recognition and their musical and pedagogical instruction. Although all of them use a wide variety of strategies, they show various preferences in relation to the proportion of types of practice that they use. More consistency is found in aspects such as motivation and memorisation, especially with regards to students' answers.

Teachers in this group had different reasons to begin their careers in music teaching, including the economic aspect and love for music. At the time of participating in this empirical study all claimed to feel intrinsically motivated to teach music to children, showing an evolution in their reasons to teach. The most prestigious teachers feel a higher level of support from their institutions than the other teachers. All teachers in this group perceive that their students are highly motivated and this is consistent with their students' answers, although some of them find it difficult to enhance their students' motivation and to keep them practising. Answers to the questions on motivation show certain contradictions, for example, some teachers claim to be funny but serious, to enjoy teaching and feel boredom as well as to feel passionate and frustrated about their teaching.

The most significant discrepancies found in these teachers are in the way they use the different types of practice considered in this dissertation, as well as in the structure and content of the lessons. All teachers show a similar number of tasks per hour, although they prefer to use different strategies. These preferences seem to be related to their level of expertise and recognition. Thus, the most recognised teachers showed a wider variety of types of practice, with special emphasis on guided and modelled practice, whilst the presence of oral instruction is more evident in the other teachers. Expert teachers show a clearer structure in lessons, that usually is intense and includes working on motor skills, repertoire, intonation, rhythm interaction and with the parents. The lessons of other teachers showed less intensity, with lower levels of physical practice and a lower number of activities. Interestingly teacher TTM1 hardly ever worked on pieces or asked questions of his students.

Considering the diversity of contexts and backgrounds of the teachers and students in this group, it is difficult to find procedures or patterns that can be related to traditional teachers. The main similarities were found between those teachers with the most successful careers, as well as in teachers in other groups who show similar

levels of recognition. These aspects related to successful teaching will be discussed in chapters ten and eleven.

Chapter ten. Top teachers

After analysing the data obtained from each group of teachers, the next aim in the study is to find answers to the following research questions: Do the most renowned teachers have any characteristics, procedures or teaching habits in common independent of the method they follow? What are the similarities and differences that they show in comparison to other teachers? In the next paragraphs, data from four of the most relevant teachers and their students participating in the study have been put together and analysed, following the same procedures that have been applied when analysing each method.

Top teachers' details and data

Four teachers has been selected as models of efficacy and prestige, under the following criteria:

- All of them are well known, not only in their own countries but abroad.
- They are highly regarded amongst their colleagues because of their outstanding outcomes (a majority of their students play at a higher standard than other students in terms of intonation, quality of their tone, musicality and complexity of the repertoire in relationship to the number of years that they have been learning how to play the violin).
- They are frequently asked to teach at international workshops and conferences.
- They present high levels of expertise, i.e. long careers as violin teachers (more than twenty-five years of teaching experience)

In addition, three of them lead successful programmes and hold positions of responsibility in prestigious institutions. One of these teachers is not an active performer whilst the other three play either professionally or in amateur orchestras. The environment where these teachers work is varied, both in terms of the age and level of their students and the place where they run their teaching practice. One of the teachers works exclusively with beginners at her private studio and gives group lessons in collaboration with other teachers. A second teacher runs his own music school with more than three hundred students who play string instruments. The other two teachers work both at the university and in music schools where they lead successful string programmes for young players. 100% of the teachers give private as well as group lessons. 75% of them work with homogeneous groups where all the

students show a similar standard and none of them consider age as a criterion when organising groups.

Motivation

Answers to the questions on motivation show a high index of similarity for all four renowned teachers. Discrepancies are mainly found in the reasons that moved them to start teaching at the beginning of their careers, while answers are highly consistent for most of the other questions. Teacher TZ1 alone did not express any affinity for children or teaching. Besides, she was not moved by working conditions or a particular need to find a job, which is the case of teacher TTM4. However, the other two teachers expressed a positive attraction for the working conditions and one of them claimed that teaching the violin was the only working position that she found.

When asked about their reasons to teach music nowadays 100% of the teachers agree they love teaching. Their comments include references to their love for children, their colleagues, and personal beliefs that music is more than a mere job: 'I love children and teaching music as a way to create the transformation of children's lives' (TS1); and 'Because it is a way of life' (TTM4). Apart from their love for teaching, these teachers also expressed an affinity for playing (100% of top marks). 75% of them listen to classical music on a daily basis, while teacher TS1 indicated this frequency with a mark of four out of seven. All the teachers seemed to be comfortable at their work places. Additionally, all felt supported they by their institutions. They also frequently meet other members of the education community, including pupils' parents and teachers who teach other subjects to their students.

None of them show relevant difficulties in motivating their pupils (the highest mark for this question is two, being one for 'Not at all' and seven for 'Certainly yes') and they hardly differ on the strategies they use. They all encourage their pupils to socialize with other children who play music and stress values such as perseverance as well as involving families in the educative process and organize concerts. 75% of the answers also include strategies such as 'I try to be funny and to make jokes' and 'I transmit them my love for music'. This unanimity is consistent with the fact that all the teachers consider that their students are highly motivated (outcomes show 75% of the answers marked with seven out of seven and the other 25% with six out of seven).

Memory

100% of the teachers claimed to ask their students to play from memory always, including at private practice, concerts and exams. The only answer that might look inconsistent comes from a teacher whose students are young beginners and they never undertake any exams. This is why she did not make any reference to her students playing from memory at exams. This teacher described her teaching habits concerning memorisation of pieces in the following way: 'Most pieces, if not all, are played from memory' (TS4). All the teachers said that they teach their students how to enhance their memory. Interestingly, even though 100% of them affirm that they check the strategies that their pupils use to learn pieces from memory (one of them only does this 'Sometimes'), answers are not consistent when they are asked how they check this. One of the teachers did not give any answer to this question. A second said that she listens to her students playing the piece, which is more related to checking that the student has memorised the piece than to the way he or she has managed this. The other two teachers have been more specific in their answers, explaining how they spend some of the lesson time checking the way their students practice at home: 'I use time in the lesson for beginners to ensure that they understand the process for playing by ear' (TS1); and 'I ask them to show me at the lessons the strategies that they have applied at home (and that I have already taught them)' (TTM4).

Teachers showed more consistency answering the following question, where they were offered some options with strategies that they might use to enhance their students' memory skills. All of them ticked options including analytical tools, such as analysing the structure of the piece or dividing the piece into small fragments. They also made reference to listening to the recording and recreating the final performance conditions. However, just two of them indicated strategies that involve imagination. These two indicated reading the music score without physically playing the violin, while just one of them made a specific reference to imagination and ticked the option 'To imagine they are playing the piece'. One of the teachers was more specific and showed awareness of the different types of practice as well as the different channels that can be used to send information to the students: 'They have to do it in front of me, even in an embryonic form. "Manual assistance", guiding their movements and transmitting sensations by touching them' (TTM4).

General questionnaire

Due to the wide range of topics covered in the general questionnaire it is to be expected that there will be a lack of unanimity in the answers, even though all the teachers included in this group are highly experienced and well known for their outstanding outcomes. Nevertheless, some tendencies can be observed in some of the topics, where agreements or disagreements are more clearly shown. The highest levels of agreement can be observed in the passion that these teachers share for what they do, with special emphasis on music, children and teaching. In spite of this, their reasons for teaching also includes other factors, which strongly differ among teachers. Again, they all show an affinity for teamwork, frequently contacting other members of the staff, as well citing a fluent relationship with their institutions, whose support is perceived as strong by all these teachers. The way they all assess their students' evolution seems to be homogeneous but not the way they programme activities and goals, which is one of the topics where more discrepancies can be observed.

All the teachers in this study conceive musical learning as an activity that benefits the individual in a holistic way. In addition to the mere pleasure of learning music, other values and skills are attributed to the learning of the violin. When asked about the reasons why they would recommend someone else to play the violin, none of the teachers made reference to the acquisition of musical skills, such as ear training or music sensitivity. Instead, all of them referred to how beneficial it could be for the personal development of the child as well as for other aspects of their lives, fore example: 'Love of music. Enhance learning anything' (TZ1); 'Because of all the life lessons that can be learned through the study of music' (TS1); 'My daughter tells her daughter: "we are doing this because it is good for your brain and gives you a beautiful heart" (TS4); and 'Playing an instrument helps to acquire values that are highly beneficial for that personal global development' (TTM4).

This way of understanding music goes beyond the limits of the music itself and goes into the field of human development, what it is also consistent with the answers referring to the values that teachers try to transmit at their lessons. These values include references to moral values, such as 'work ethic' and 'honesty'. Other values are related to persistency at work, as it is in the case of 'discipline', 'dedication' and 'excellence' as well as the answer of teacher TS4: 'That persistent right repetition leads to exceptional skill and achievement' (TS4). Other values include components of aesthetic appreciation ('beauty'), communicative skills ('self expression', 'listening'), learning skills transferable to diverse situations or fields ('concentration',

‘memorization’) and even personal wellbeing (‘relaxation’). Finally, teacher TTM4 made an explicit reference to the development of motor skills related to violin learning.

Three of the teachers gave explanations about how they try to instil values in their students. One of them associated the transmission of these values with the achievement of high goals ‘through right repetition’ (TS4), proving that everybody can develop talent when in the right environment. A second teacher interpreted values transmission as a teacher’s daily task that depends on his/her dedication. There is not a previous plan but instead reliability on the daily work. A third teacher referred to a book in which he explains the principles governing his teaching. He also shows his philosophy as a Suzuki teacher and the way he considers the violin should be used as a tool to educate children following Suzuki’s principles.

All the teachers believed themselves to be passionate about teaching, with 100% of the answers being ‘7’, that is the highest possible option in the proposed scale. This passion can also be observed in the high marks that they assign to most of the characteristics that they were offered as representing their way their pupils see them. Personal characteristics such as serious, loving, committed, enthusiastic, energetic, demanding and adaptable to each individual got marks of five or higher. It is interesting to observe how these teachers identified with characteristics that could be initially considered contradictory, such as serious and entertaining. This supports the idea that entertaining does not need to be related to humour but rather to concepts such as enthusiasm, energy or commitment. There are two marks under five only. One was given by teacher TTM4 who marked with four the option ‘Entertaining’ and reflected with a comment indicating a low self-concept this characteristic: ‘Sometimes I would like to make the lessons more enjoyable, being more entertaining’ (TTM4). The lowest mark was two, given by teacher TS4 to the option ‘Peaceful’. She is a highly motivated and passionate teacher who considers herself enthusiastic, energetic, demanding, entertaining, loving, committed and serious. Such an emphasis in the description of her own approach to violin teaching seems consistent with someone who lives her profession in an intense way. All the teachers showed confidence in the way they teach as well as in their self-perception and they did not show any particular need to change. The only exception was the aforementioned comment by teacher TTM4 wishing to look more entertaining occasionally.

Regarding their feeling when teaching, it is interesting to observe how categorically they affirm that they enjoy doing so and never get bored. However, half of them show a certain level of frustration, which was indicated with marks of three

and five. Teacher TS4, who marked her level of frustration with three, also marked with seven her passion, enthusiasm and love for music. This could be related to a sensitive and passionate personality combined with high expectations not only for herself but also for her students, which could make this teacher perceive as frustrating situations where expected goals are not completely achieved. Interestingly, the other teacher who showed a significant level of frustration is the teacher who seemed to be more critical with his own teaching and expressed his desire to change.

Diverse issues about students' homework, goals and teachers' relationship with the syllabus are included in the next paragraphs. 100% of the teachers utilise a system so that their pupils can remember the contents of the exercises that they must practise at home. All their students have a notebook where homework is recorded. Usually it is the pupil who notes the homework down but Teacher TS4's students are too young to assume this responsibility so it is their parents who are in charge. The other three teachers also check that their students have included in their notes the procedures to follow when practising and the goals that must be achieved by the following lesson.

All these three teachers consider that they teach their pupils how to be self-sufficient. The only exception is again teacher TS4 whose students leave her before they are old enough to dispense with their parents' help. This is also the only teacher who takes daily notes of the children's' progress in a personal diary. When teaching young children, teacher TTM4 also asks parents to film the lessons, so they have a detailed reminder of all the teacher's instructions: '…Since parents film every lesson, the notebook is just a complement to the recording' (TTM4). Teacher TS1 checks during the lesson the way parent and pupil practise at home and alternatively asks them to film a practice session so he can check the effectiveness of their practice time: 'Parent and child practise together in front of me. Student or parent take notes of the lessons. Students video practice session for me to view' (TS1).

The main discrepancies in these teachers' procedures come into sight with regard to issues such as the syllabus: the way they establish, review and adapt it to each individual as well as acknowledgement that pupils have of the goals that they are expected to achieve. Interestingly, there is no unanimity in reviewing, updating and adapting the syllabus to each student in writing. In fact, 50% of the teachers said they do not adapt in writing their syllabus to each pupil. However, some apparent contradictions can be found when analysing other answers. One of the teachers in this 50% stated to establish different goals for each student on the same level and

even included the following comments: 'I believe in personalized teaching, without ignoring the benefits of establishing some consistent common goals' (TTM4); and 'I constantly review my syllabus' (TTM4). On one hand, this might indicate that teachers are barely disposed to write their plans down even if they are aware of the importance of having the syllabus updated and the need to tailor their teaching to each student's needs. On the other hand, these teachers are highly experienced and might have decided that these updates in writing are not necessary any more: 'Do you check the syllabus from time to time to update it? (one - seven): Not anymore' (TZ1). Nevertheless, one of the teachers (TZ2) confirmed both to adapt the syllabus of her department to every pupil in particular and to establish different goals for every child at the same level. Further, she was the only teacher who stated she programmed in writing the activities that she expect to develop each year to reach her goals. 50% of the teachers inform their pupils which are the goals that they must achieve during the academic year. Again it is interesting to observe that teacher TTM4 is not among these teachers, since through his answers he seems to be highly systematic, organised, aware of his syllabus and of the importance of establishing general and specific goals. Unlike teacher TS1, TS4 does not seem to follow a certain syllabus. She is an independent teacher who answered 'Not applicable' when asked if she checked her syllabus regularly in order to update it and marked with the lowest figure or indicating 'No' to any question referring to the syllabus.

Awareness of timing during the sessions is similar for all four teachers. They seem to need more time to cover all the activities that they plan for every lesson, as can be observed in their marks that show an average of 6.3. None seem to finish before the stipulated time. However, it was interesting to observe how their marks were not as low as might be expected when asked if they usually finish all the programmed activities on time. In this case marks showed an average of 3.3, with two of them over 4.0 and just one under 3.0. They say they finish activities on time with certain periodicity but at the same time also strongly affirm that they need more time to cover all the planned activities. This might indicate their wish to have more time to progress at a faster pace and include more activities, at the same keeping the lesson time under certain control. Interestingly, the observation of these teachers' lessons did not show that they have a particular problem controlling the lesson time. A majority of the lessons started and finished without a significant delay and the topics proposed at the beginning of every session seemed to be covered at a greater or lesser extent.

Teacher TS4 was the only individual who answered 'Not applicable' to all the questions regarding the way the she assesses her students. This might be due to the

fact that her students are very young and do not undertake exams, therefore she seems to relate assessment with marks and tests. The other three teachers seem to relate assessment to a permanent process that takes place at every lesson. Interestingly, two of these teachers must give marks to their students at the end of every academic year, as they work for an institution where students are enrolled in official programmes and must pass exams. However, none of these two teachers expressed that they assess their students after every term or academic year, but instead just do so after every lesson. This seems to show an understanding of assessment as a concept that differs from giving marks or passing exams. One of the teachers in this group even went further in his appreciations and indicated that he assesses their students not only at every lesson but also after concerts, exams and the first time he meets them, after an audition. Nevertheless, he reinforced the belief of assessing students on a daily basis and the importance of giving tools to his students that they can assess their own performance with a constructive criteria: 'Evaluation takes place daily with young children. For the eldest, the evaluation takes place after every concert or exam. I try to encourage self-assessment on the eldest students' (TTM4). Finally, 50% of the teachers declared that they inform their pupils beforehand about the criteria that will be taken into account at the assessments.

All teachers in this group showed confidence in the way the deal with their pupils and keep difficult situations under control. Disruptive behaviours do not seem to be an issue for them, neither at private lessons nor when teaching groups. This is corroborated by the fact that all of them gave the lowest mark when asked about their problems in keeping such situations under control. This is also consistent with the fact that they reflected their students' level of motivation with an average mark of 6.8. It is interesting to observe that the only teacher who gave to this question a score under seven (six) believes that being demanding can be a factor that lowers their pupils' level of motivation, whilst praising them it is more likely that they keep highly motivated: 'They can feel less motivated when I am demanding, instead of praising them' (TTM4). These teachers use different types of strategies to keep the situation under control. On the one hand, teachers make references to their aim to keep a positive personal attitude and atmosphere, catching students' attention: 'Interesting and fun' (TZ1); and 'Fun and interesting' (TS4) being examples. On the other hand, they also make reference to discipline and rigor, it being the teachers' responsibility to establish the goals, to communicate to their students what they are expected to achieve and to stay firm in these expectations: 'I explain what is expected. I am consistent in my expectations' (TS1), 'by been firm' (TS4), 'I try to assume my role'

(TTM4). Teacher TTM4 suggested that it is important to listen to students' demands and aims in order that teachers can assume their role and authority from understanding.

One of the issues in which all the teachers showed a clear agreement is the way they cooperate with their institution and the other members of the educative community, namely, parents and other teachers. All answers showed that they require from their students' parents a high level of involvement. This includes attending the lessons, taking notes and, depending on their children's age, helping or supervising the daily practice. One of the teachers specified that she expects her pupils' parents to take responsibility of these duties when children are twelve years old or younger only. The other teachers did not indicate anything although the observation of their lessons showed that no teenagers attended any lesson accompanied by their parents. Parents' involvement it is not limited to home practice but also includes cooperation, organizing events such as concerts and workshops. One of the teachers takes advantage of parents' musical skills and asks them to take up piano accompanist duties: 'Some parents are professional musicians and they play the piano at concerts and workshops' (TTM4). None of the teachers showed any concern or lack of security when meeting parents and all of them said they feel comfortable. However, they differ in the way they prepare meetings. 50% of the teachers do not do any preparation prior to a meeting, whilst one of them thinks about it and the other one takes some notes down. Answers are more homogeneous when asked about the post meeting, with 100% of the teachers saying that they get some conclusions although none of them note any ideas down.

Relationships with other colleagues seem to be fluent, since all the teachers declared that they cooperate with other teachers who teach the same students. Nevertheless, the way they understand this cooperation is not the same for all of them. One considers cooperation as an aspect of the fact that other teachers teach his students at workshops or as deputies: 'Workshops, summer substitute, occasional lessons with other teachers if I am away' (TS1). A second teacher organises weekly sessions next to other colleagues where they share teaching duties and children attend theory, orchestra and group lessons. These sessions are coordinated at teachers meetings: 'We pool our individual students into weekly groups for theory, reading and playing together. Thus, it is both practical and motivational' (TS4). A third teacher who works at both a music school and music college, regularly meets the person who teaches group lessons to his youngest students and included in his concept of cooperation that he has a professional pianist

accompanying his pupils' at the lessons that he gives at the music college: 'I programme activities next to the person who teaches the group lessons at the music school. At the college I constantly work with the accompanist' (TTM4).

Other than one of the teachers who works at her independent studio, all others involve the institutions where they teach in the activities that they organize. They have two different reasons to do this: one, when the teacher has also managing responsibilities and, second, subsequently when he coordinates all the activities that take place at his music school. There is a sense of self-interested behaviour amongst the other two teachers and the institutions they are working for, which is reflected in their comments: 'My projects are not only mine but my institution's' (TTM4); and 'We are part of the music school' (TZ1).

Top teachers' students

Lessons taken by twenty students, representing four of the most recognised teachers who have participated in this study, have been analysed with the aim of observing if they show any remarkable similarities or discrepancies. These children cover a wide range of ages, spanning five to twenty years. Their contexts are also diverse as they live in three different countries, namely: Spain, the UK and the USA. They attend violin lessons in music schools, private studios and conservatories and their socio-cultural backgrounds are also diverse. On average, these students have been learning how to play the violin for more than six years. Their level is also diverse, as eight of the students are beginners; five of them are advanced, while another seven show an intermediate level. One of the teachers teaches only beginners, another teaches from beginners to an intermediate level whilst the other two teach at all levels. Except for some beginners, most students have been studying with their present teachers for an average of almost three years, which allows them to be familiar with their procedures.

All students attend lessons on other subjects related to music. The number of subjects is related to their level and years of experience, and ranges from one to nine, the average being 3.4. All the students attend group lessons except four of them who study with teacher TTM4, so this seems to depend more on the teacher than other factors such as the age or children's level. This is understandable considering that group lessons are an essential element of the Suzuki method, and, of the other three teachers, two use the Suzuki method and the third applies Zweig's methodology, which is strongly influenced by Suzuki's ideas. Orchestra and music

theory are very popular among these students, followed by chamber music and harmony - subjects related to intermediate and advanced students mainly. Some students also attend piano lessons, as well as other subjects including choir, musicianship, improvisation, ear training and voice.

Memory

One of the two questionnaires that the students had to fill in included questions related to their habits and strategies that they apply when playing from memory and during the memorization process. This includes references to how frequently they perform from memory, what difficulties they find and the tools that they use.

Playing from memory in a wide variety of contexts seems to be distinctive of those students whose teachers have developed the most successful teaching careers. Some students claim that they always play from memory and all claimed to do it at lessons. Two students out of twenty claimed to not play from memory at concerts. In this case, both students are five years old and it might be that they have had no experiences playing solos as their teacher made her students play from memory at all the lessons and concerts that I was able to observe. Therefore, I assume that it is very unlikely that they would have been allowed to perform at a concert while looking at the music. Other contexts where students claim to perform from memory include the daily home practice and the group lessons, including the solos that they are occasionally allowed to play at those group sessions. One of the students also referred to the warm up previous to a concert as an opportunity to check that the piece is solidly memorised: 'Before every concert in order to remember the piece before the performance. Practising at home' (TTM4P1).

Students did not show any particular difficulties in learning pieces from memory. When asked to indicate on a one to seven scale how easy it was for them to memorise (being one for very difficult and seven for not difficult at all) seventeen of them chose marks of five or above, with just students TS1P2 and TS1P3 giving marks below four. Nevertheless, the rest of teacher TS1's students showed high levels of confidence in their ability to learn the repertoire from memory. One of the youngest students did not used the one to seven scale arguing that it is too early for him to know how easy or difficult memorising music is. Students were asked to choose, from a list of six strategies, those that they use in order to learn the repertoire from memory. They also were given the opportunity of adding any other strategy that they might use apart from those included in the list. Most students

claimed to used a large variety of strategies (an average of 3.8 strategies per student), although one of the students maintains that she does not use any strategy in particular, as the fact of learning a piece from memory is something that simply happens after practising the notes: 'By the time I have learned the notes, I can play from memory' (TZ1P4). The most common strategy among these students is to listen to the recording, something that might initially be expected from the Suzuki students. The only two students who did not claim to use recordings were TZ1P3 and TZ1P4, aged sixteen and twenty respectively.

Most students divide pieces into small fragments and around half of them prefer to analyse the structure of the piece, to recreate concert conditions or to imagine that they are performing the piece. This high percentage of students using imagined practice is one of the parameters that differ to a greater extent in comparison with the rest of the students who not in this group. It is also interesting to observe how one of the students (TZ1P3) has not chosen the most popular strategy ('I listen to the recording') or to analyse of the structure of the piece and, instead, claims to use other strategies mainly related with imagined practice ('I read the music score without the violin'; and 'I imagine I am playing the piece') and also using other strategies: 'I analyse the structure of the piece' and 'I play the whole piece recreating performance conditions: with informal audience, concert dress, on stage' (TZ1P3). Six students claimed to read the music without physically playing the instrument and some students also considered that the main way to improve their memory skills is by increasing physical practice through repetition: 'Repetition, Repetition, Repetition!' (TS4P1); 'Repetition' (TS1P2); and 'I play the piece many times' (TTM4P1) illustrating this. A comment made by student TS4P2 made reference to imagined practice outside the usual practice scenario and without the instrument: 'Singing with fingering in car, walking to school, etc.' (TS4P2). Finally, another claimed to use the piano accompaniment as a guide not only to refresh his memory but also to identify the role of the violin part in the context of the whole piece: 'I ask the accompanist to play the piano part for me so I can remember how my part fits into the piece' (TTM4P1).

Students made twenty-two comments when asked about the reasons why they may suffer a memory lapse at a public performance. These comments have been grouped into five categories, namely: 'Comments showing that students have no particular problems when memorising'; 'Nerves'; 'Distractions'; 'Comments related to lack of enough practice'; and 'Others'. Three students made no comments. This might be attributed to diverse reasons. On the one hand, student TS4P3 showed in a

previous question her young age and lack of experience in public performances, so this question might not be applicable to her. On the other hand, students TS4P2 and TTM4P2 are more experienced and claimed to learn pieces from memory easily. This might imply that they are not aware of any particular problem when performing from memory. Three more students specifically claimed not to have ay problems: 'I do not have any problems memorising' (TZ1P1); 'I am used to play from memory' (TZ1P2); and 'I never have gaps is my memory (TTM4P3). Most of the comments make reference to issues commonly exposed by music performers. For example, five students claimed 'Nerves' as the reason why they may suffer a memory lapse at a public performance. Lack of enough practice is the main problem for three students. Students of teacher TS1 mentioned repetition and review, two issues that are particularly emphasised in articles and books written by this teacher: 'Lack of preparation' (TZ1P4); 'not enough review' (TS1P1); and 'not enough repetitions' (TS1P5). Five students alluded to 'distractions' and two were more specific, mentioning the disturbing effect of flash photography on their concentration: 'Flash photography and loud noises like babies crying' (TS1P3); 'If someone takes a picture with flash' (TTM4P1). Student TZ1P5 referred to tiredness as a factor that makes it more difficult for him to play from memory, and two other students did not specifically answer this question for different reasons. Firstly, student TS4P4 was not sure what to answer whilst another student alluded to her young age and lack of experience: 'This has yet to happen. Very few performances given her age on the stage' (TS1P1).

When asked how they think they could improve their memory skills, students mainly referred to strategies that they were given as options in a previous question. Therefore, more repetition and practice was mentioned by several students: 'More repetitions' (TZ1P5); and 'Practice the song more' (TS1P1). For one of the students, memory is developed by frequently playing from memory: 'Practising longer from memory. I just practise from memory sometimes, not all the time' (TTM4P1). Listening was considered by five students as a good way to improve memorisation. All these students learn how to play the violin with the Suzuki and traditional methods, but none of teacher TZ1's students referred to listening, for example: 'More practice. Listening to the CD' (TS4P5); 'Listening to the recording more often' (TTM4P4). Teachers TZ1's and TTM4's students made references to working the piece in small fragments, whilst teacher TS1's students put the stress on practising and listening more: 'Listening to the recording more frequently and dividing the piece in little fragments' (TTM4P3); 'More intense dividing of sections' (TZ1P3); 'Practice

the song more' (TS1P1); 'Practice more. Listen more. Repetition' (TS1P2); 'Practice more often' (TS1P3); 'By listening to the CD more and practice more' (TS1P4); and 'Listening more' (TS1P5);

A third of the students do not seem to have any special problems in performing from memory, and this was shown in different ways. Five students left this question blank, one more answered 'Not applicable', and another one was more specific: 'I think my memory is fine and will improve naturally with time' (TZ1P4). Repetition and listening are the most popular strategies among this group of students, although this might give the impression that students' preferences depends on their teachers and the method they use and their level as the most advanced were more for analytical and imagined strategies: 'Listening to the recording more frequently and dividing the piece in little fragments' (TTM4P3); 'More intense dividing of sections' (TZ1P3); and 'I sing it a lot in my head at school and play it with my fingers without the instrument' (TZ1P3). Nevertheless, and since very young students have their parents' help, they might use analytical tools explained by their teachers to their parents, for example: '[She] colour codes the different sections in each piece which gives an understanding of the structure of the piece in a straight forward way' (TS4P1). It is interesting to observe that one of the students considers memorisation as a symptom that the piece has been learned: 'I only consider that a piece is learned just once I know it by heart' (TTM4P3).

Motivation

Students' reasons to learn music as well as the influence of their environment have been addressed in this questionnaire. Both extrinsic and intrinsic motivation are represented in the questions, which cover issues such as the reasons why students came to music; their reasons to keep playing and learning; their habits in listening to classical or any other type of music; how much they enjoy playing and practising; and their parents and teachers' support as well as their feelings before the lessons and public performances.

The reasons children had to start learning music and the reasons why they keep learning by the time of filling the questionnaire have been analysed, with the aim of observing any possible variation or evolution in their motivation. Initially, more than half of the students began to learn how to play the violin because they liked music. However, eight of them claimed to be influenced by other relatives or friends who already played music. The same number of students affirmed that it was their parents

who took the decision. Besides, student TZ1P1 claimed that she was influenced by a local professional soloist of great international renown. This seems to be a common source of motivation and inspiration among children 'I wanted to be like Joshua Bell, who I was very exposed to' (TZ1P1). Students' answers show an evolution in their reasons to learn. When asked about their motivation to keep learning how to play the violin, 95% of the students claimed that they like music and even four of them (20%) expressed their intention to become professional musicians in the future. The development of intrinsic motivation during the years that they have been attending violin lessons is also reflected in another comment made by one of the students: 'I think it is important to have a musical instrument in my life' (TS1P2). Nevertheless, external motivation is considerably higher at the beginning of the learning process, when parents condition their children's opinion and their decision to start attending violin lessons to a greater extent than when they filled this questionnaire in. Therefore, the number of students who claimed to play the violin because of their parents' influence dropped from eight, when they first started learning music, to five, by the time of answering this questionnaire. The number of students claiming their friends and relatives' influence also dropped from eight (when asked about their influence to start learning music) to six (when asked about their impact in maintaining their playing music by the time of answering the questionnaire). Further evidence showing the development of intrinsic motivation and adherence to violin playing is the fact that none of the students consider believe they will give up music in the future. Eleven students believe that they will be amateur musicians whilst eight would like to work in the music industry, seven of them as teachers or performers and one in another sector: 'I will pursue a music/technological related career' (TZ1P2).

The last set of questions in this section of the questionnaire focused on students' likes and dislikes regarding the following habits: playing, practising, listening to classical music and listening to any other type of music. Answers showed that students mostly like playing but not practising, although few of them showed a clear dislike for practising. Most students also prefer listening to non-classical music, although no relationship could be found among any of the aforementioned parameters or between them and other factors such as the age, teacher, method, or level. Just one student showed a low attraction for all these habits.

As elements of the motivation, some of the questions that were asked to the students regarding their perception of their talent make reference to their efficacy when practising and their confidence when facing a public performance or a private lesson. They showed a high self-awareness as they claimed to be more talented than

most of their peers, which was reflected by an average mark of 5.5 in a one to seven scale, where one was for 'Not talented at all' and seven for 'Really talented'. Students showed a similar conception of the way they use their time when practising, as shown by an average mark of 5.16. A similar level of confidence is claimed by most students when asked about their feelings before a public performance or a private lesson. They mostly feel happy and that the situation is under control. Student TS4P2 shared both feelings but added the following comment:

> Q. When I play in front of an audience…I feel that everything is under control (one – disagree to seven - agree).
> A. 5 (Butterflies in tummy).

This shows how confidence, enjoyment and certain anxieties are compatible for some students. The answers given by student TS1P3 are particularly interesting as he shows a low self-awareness but also he claims to feel happy when performing in front of an audience, even if he does not feel confident or talented. Most students claimed to have positive or neutral feelings before a private lesson, as just two out of twenty claimed to feel stressed and nervous.

Students were asked about the support that they receive from parents and teachers. Firstly, students were offered seven options to describe the support that they perceive from their parents, namely:

- No support at all.
- Economic/driving you to the lessons.
- They attend the lessons and take notes.
- Helping with the daily practice at home.
- Praising you and recognising your efforts.
- They are always willing to listen to you.

None of them chose the first option, but it is remarkable that all the other options were chosen by at least 75% of the students, showing awareness of their parents' support. Students mainly claimed they receive economic support and that their parents are always willing to listen to them. Seventeen of them also felt that their parents were always willing to listen to them and in general they perceived great support, both logistical and emotional. Students' parents meet their teachers very often. Sixteen of them attend the lessons so they can monitor their children's

progress. Three more meet the teachers once or a few times a term whilst just the eldest student, who was twenty, claimed that her parents never meet her teacher.

Teachers' support is acknowledged by all the students. They wrote thirty-five comments describing those aspects of their teachers' personality and the way of teaching that they like the most. Thirteen students referred to the teachers' knowledge and teaching practice. Some of these comments are not specific and mention teachers' knowledge or skills in general, whilst some others referred to certain types of practice, such as modelled, physical and oral: 'Instructions are clear' (TS4P1); 'he explains things well' (TS1P4); 'repetition' (TS1P1); 'he plays things for me' (TS1P1); and 'she has good examples to show you stuff' (TZ1P3) being examples. Other students recognise the value of the teacher's help in overcoming the difficulties that they find in the repertoire: 'She is wonderful at breaking difficult tasks into tolerable bits' (TZ1P2); and 'He shows me good exercises to learn my pieces' (TTM4P5). It is also appreciated that teachers not only know what students must learn but they also do it in an attractive way, so students have fun: 'Difficult things are turned into games' (TS4P1); 'games' (TS4P2).

Students appreciate different aspects of their teachers' character. Some of them appreciate having a close relationship with them, even establishing affective links, for example: 'Listens as a friend' (TZ1P4). Having a rigorous teacher is also appreciated by some students: 'He is a perfectionist and never leaves things half way done' (TTM4P1); 'He is very perfectionist' (TTM4P3); and 'Strict' (TS1P3). Other students emphasise that their teachers have a kind personality: 'He is nice' (TS1P4); 'patience' (TS1P5); 'He is very patient' (TTM4P3); 'He is very kind' (TTM4P4); and 'Nice person' (TS4P5) being examples. Positive and entertaining attitudes are also appreciated: 'Very energetic and fun to be with' (TZ1P1); and 'She treats everything as a possibility. Very positive. You can do anything attitude' (TZ1P2); 'Direct' (TS1P5); 'He is always happy and never nervous' (TTM4P1); and 'He makes many jokes' (TTM4P2).

Students also like feeling that they are important to their teachers. They like receiving support when facing difficulties and positive comments to praise them when making progress: 'Very upbeat and encouraging' (TZ1P3); 'Encouraging. Praises me when I do well' (TS4P5); 'Says nice things about playing' (TS4P2) 'He supports me even if I make mistakes. He is very supportive' (TTM4P4); 'She likes me a lot and thinks I am special' (TS4P5); 'Encouraging' (TS1P3). This desire to be supported does not mean that students are looking for undeserved praises, as shown by the following comment: 'Direct' (TS1P5). All this support must always aim to help

students to make progress, as progress is an important source of motivation in itself. Some students claimed that they love playing the violin, showing that they are intrinsically motivated, but one of them explained that he enjoys playing because of his progress: 'I love playing the violin. Now that I start having control of the instrument I can feel what I want to feel playing it' (TTM4P3). Another student, whose mother explained how her daughter feels motivated by her achievements, supports this: '… [She] enjoys practising when she can play her pieces. She sometimes finds learning very frustrating and would rather not practice, but sense of achievement after learning it is great' (TS4P1).

Conclusion to chapter ten

In this chapter, I have reported my own research into the practices of 'Top' teachers and their students. The most successful teachers who have participated in this experimental study show numerous similarities in their lesson organisation, motivation, types of practice that they prefer, the way they enhance their students' memorisation skills and the way they involve parents in the teaching process.

The structure of their lessons is well defined in all cases. These teachers usually start by announcing the contents of the lesson and in most cases they cover all intended topics, showing a good sense of time management. They are also concerned about the effectiveness of their students during home practice, claiming that they use different strategies to improve their students' skills and self-efficiency. All the students have a notebook in which they note down the homework and, in most cases, teachers check that students not only know what to do but also how to practise.

All teachers in this group claim to be intrinsically motivated to teach music, although not all of them had the same motivation when they began in the teaching profession. This shows an evolution from extrinsic to intrinsic motivation that could be related to their progress as efficient teachers. 'Top' teachers' students also show high levels of intrinsic motivation and feel supported by their teachers and parents. This relationship between motivation and the level of expertise could be the subject of further research.

Numerous similarities can be found in aspects such as memory and practice. Performing from memory is a common practice for all this group's teachers and students. This seems to happen in all contexts and without major problems. Teachers claim to offer their students a wide variety of tools in order that they can

memorise the repertoire easily and students confirm that they have received those tools from their teachers. Regarding the types of practice used by these teachers, there is a preference for students' performance, either physical or guided. 'Top' teachers' oral instruction is notably shorter than the average, although they frequently ask short questions to their students. As a result of this use of the types of practice, lessons are intense with high levels of on-task behaviour mainly focused on students' performance.

Chapter eleven. Discussion and conclusion

Having concluded my report of empirical studies on violin pedagogy, the question remains how these practices relate to ML and how knowledge and awareness of ML can aid the practising violin teacher. I turn to these questions in this chapter, in which I also summarize and synthesize my main findings, the limitations of this study, suggestions for further research and develop more formal recommendations for the modern violin teacher.

Research questions and findings

The complexity of analysing violin teachers' effectiveness has been reflected all throughout this thesis. Diverse approaches and issues can be considered and the final sample includes some prestigious teachers with successful international careers and some others whose careers have not had a relevant impact in their colleagues. The most prestigious teachers have been included in the 'top' group under the criteria specified in chapter 4.It is important to stress that they are not all from any particular approach. The fact that the sample includes teachers representing diverse contexts and levels of expertise means an attempt can be made to answer the main research questions:

- Is good practice associated with any particular pedagogy or method in violin teaching?
- Are there any similarities among successful teachers, independently of the method that they use?

In order to answer the first question, I investigated the teaching practice of five groups of teachers, who use different pedagogies, through observation of their lessons as well as three questionnaires for them and two more for their students. Similarities and differences among the groups were analysed, with the aim of checking if any characteristic of effective teaching is related to a particular method and if effective teachers share procedures and routines, independently of the method or pedagogy that they use. Therefore, and consistently with Kai-Wen and Durrant (2007), this study focuses on students' learning processes rather than on their outcomes.

Initially it is a complex matter to determine which of the issues that have cropped up in the experimental study are related to effective teaching and which ones are

affected by the nature of the research in itself or other matters. Creech and Hallam (2010) as well as Lehmann, Woody and Sloboda (2007) believe that effectiveness in music teaching is determined by the relationship between teachers and students. However, not only did the most effective teachers show a positive relationship with their students in this study, but also most teachers and their students seem to have a good relationship and to feel fairly or positively motivated by music and the teaching-learning process. Most differences were related to the evolution that teachers and pupils experimented in their motivation through the years. Thus, Suzuki teachers seemed to be highly motivated to teach music to children since they began their careers, whilst other teachers were initially more attracted by working conditions, for example, salary or holidays and thus developed their love for teaching gradually. Children who began learning music at an earlier age were more influenced by their parents to start playing music than those who started at a later age, but most children over twelve seemed to be intrinsically motivated to practice music.

Most of students participating in this study claimed to play from memory frequently and to use a wide variety of strategies. In the same way, most teachers also claimed that they ask their students to perform from memory in many contexts and that they give the tools so that their students might need to succeed in this task. Additionally, all their students claimed that they do not have any difficulty when playing from memory and that they do it very frequently.

The main inconsistency found in teachers' answers is related to the way teachers check how their students memorise the repertoire. On the one hand, all claimed that they do it, but on the other hand only a few of them explained how they do so. Most teachers in all the groups claimed that they frequently ask their students to perform from memory and that they give them the appropriate tools to do so. This consistency is especially strong in Zweig, Suzuki and the ML teachers. Rolland teachers use similar strategies to enhance their students' retention of both skills and pieces but differ in how frequently they ask their students to perform from memory. Another inconsistency was found when crossing data from teachers and students' questionnaires. Thus, students' answers show a relationship between the experiences of the teacher and how frequently and easily students perform from memory, it being the students of the most expert teachers those who show the most solid habits. However, the teacher who did place a lower emphasis on how important it is for her that her students perform from memory also claimed to give them the fewer number of strategies is one of the most experienced. Traditional teachers also showed some discrepancies in the number and types of strategies that they give to their students as well as to how frequently they ask their students to perform from

memory. Playing from memory seems to be a consistent issue in the most experienced and successful teachers, as well as in Suzuki and Zweig teachers. However, the inconsistencies found in some of the teachers in the Rolland and traditional groups could lead one to question how strong is the impact of this issue in teachers effectiveness. Regardless, teachers in the ML group show similar characteristics to other teachers who are more experienced and have higher levels of recognition among their colleagues, which could prove the benefit of the training that they have undertaken.

Other studies relate effective teaching to an intense and rapid pace, where teacher and student interact in short episodes (Duke and Simons, 2006). Teachers' actions are generally brief and action focuses on a student's activity. This is consistent with most of the outcomes obtained in this study through observation. Although most teachers showed high levels of on-task behaviour, the most effective teachers proved to be particularly consistent, specially when compared to those teachers with a lower level of recognition who also showed the lower levels of on-task behaviour. Rolland teachers show the higher pace at their lessons, with a higher number of tasks per lesson than any other group of teachers. The median of on-task behaviour in Rolland teachers takes up 85.5% of the lesson time, which is very close to the median of the four most recognised teachers (86.6%). Per method, Suzuki teachers show the lower median (78.5%) although TS1, who is the most successful teacher in this group, shows an exceptionally high percentage of on-task behaviour (94.8%). Teachers in the traditional method group show the clearest differences in on-task and off-task behaviour between expert and non-expert teachers. Therefore, the two most recognised teachers in this group show the highest percentage of on-task behaviour, next to another teacher who is not as well known but has been teaching for more than thirty years. The less experienced teachers in this group show the lowest levels of on-task behaviour among all the teachers who have participated in this study. Interestingly, teachers TML2 and TML3, whose teaching experience is the lowest among all the teachers, show high percentages of on-task behaviour as well as a higher number of tasks per hour than the most recognised teachers, which reflect the high intensity of their lessons. Both parameters are related to effective teaching laid out by Duke and Simons (2006):

> Lessons proceed at an intense, rapid pace. Because teachers identify targets quickly and concisely, teacher-student interactions occur frequently. This rapid alternation between episodes of teacher activity and student activity increases the students' opportunities to respond and receive feedback about their performances. Teacher activity episodes are generally very brief. Teachers state their feedback and directives succinctly and straightforwardly (Duke and Simons, 2006).

Besides the percentage of on-task behaviour and the pace of the lesson, another factor that is usually related to effective teaching is the percentage of teachers' verbal instruction, as claimed by Goolsby (1996): 'Many of the findings support the belief of many instrumental music teachers and instrumental methods instructors that student teachers talk too much and do not let the students play enough' (Goolsby, 1996). This is consistent with the fact that the group of 'top-teachers' shows the lowest mean of oral practice. Teachers in the Zweig and ML groups are those whose means of oral practice are the closest to the group of top teachers. In studies on orchestras, bands or ensembles, teachers' oral instruction is shown as antagonistic of students' performance. However, in private instruction teachers have a richer variety of strategies at their disposal in order to provoke students' learning, as it is shown in this study where guided, modelled, imagined, oral and physical practice are analysed, as well as the number and length of the questions asked at the lessons. Therefore, a low percentage of oral practice does not necessarily imply a high percentage of physical practice.

An analysis of all the types of practice shows that top teachers tend to combine low levels of oral practice with a notable presence of other types of practice, namely: guided, modelled and physical. Interestingly, the group of teachers that show a similar proportion of different tasks is the ML group. Consequently, teachers trained in ML combine low levels of oral practice with the highest levels of modelled and guided practice, as well as the highest percentage of the lesson time spent on questions. The moderately low level of student physical practice is compensated by the high level of guided practice, which implies students' physical activity. However, not all expert teachers show this distribution of the lesson time. Zweig teachers tend to focus on physical practice, with less guided, modelled and oral practice as well as questions. Another unforeseen outcome is the low mean of guided practice in Suzuki teachers, who are supposed to be trained and encouraged to physically manipulate their students. Nonetheless, two Suzuki teachers included in the group of top teachers show high levels of guided practice, whilst this is almost non-existent in the other Suzuki teachers.

The group of traditional teachers is that with the lowest levels of student's activity, reflected by low percentages of both physical and guided practice. They tend to talk more than the average and prefer modelled practice from the other types of strategies. As in the Suzuki group, the most prestigious teacher in this group differs from his colleagues, showing higher levels of physical, guided and modelled practice and lower oral practice. All this data seems to confirm previous research in the sense

that effectiveness in music teaching is related to high levels of students' activity, low levels of teachers' oral instruction and high levels of modelled practice.

Limitations

Besides the economical limitations intrinsically associated with a self-funding project, other limitations related to logistics and the selection of participants in the experimental studies have had an impact in this research. The fact that violin is generally taught in a wide variety of contexts makes it particularly difficult for researchers to take certain decisions. These decisions include selecting the sample and those parameters that will be analysed in the experimental studies. In this case, teachers who use some of the most relevant violin methods and pedagogies originated in the 20th century have been included, although logistical and space limitations means many other pedagogies have not been represented in this study. It has been particularly difficult to get expert teachers from prestigious European conservatoires involved in the study. The same difficulty applies to teachers with less than two years of teaching experience.

Most teachers have claimed to feel supported by their institutions and to keep good relations with parents, students and other colleagues. In the same way, most students claimed to feel highly supported by their teachers and parents, it being difficult to establish any analogy between high levels of motivation or support and a specific pedagogy.

The fact that outcomes in this study show high levels of motivation in most teachers and students might indicate that motivation and passion about music and teaching make individuals more given to participate in experimental studies, whilst those who are less confident and motivated might be more reluctant to be observed and analysed.

Implications for teachers

After having reviewed existing literature in the field of ML and analysed the data obtained in the experimental studies, the following items related to those topics considered in this dissertation (memory, motivation and practice) might have an impact on string teachers' practice:

- Memory: Since retention is intrinsic to any ML process, students' habits regarding the way and how frequently they memorise pieces and skills might have an impact on their success as musicians. This is supported by the fact

that playing from memory seems to be a consistent issue for the most experienced and successful teachers, not related to any particular pedagogy. However, asking students to perform from memory is not enough as it is important to provide students with the appropriate tools to do so and to check their understanding provoking their feedback.

- Motivation: In the initial stages of the learning process, the development of positive motivation depends more on the support that children receive from parents and teachers and less on the method or pedagogy applied by the teacher. Social motivation has a strong impact in adolescents, although it is intrinsic motivation what determines their medium and long-term adherence to music.

- Practice: Certain procedures associated with effective teaching and related to instructions, time management and the selection and distribution of activities have also been corroborated by this study as follows:
    - High levels of on-task behaviour provide teachers with more time to provoke learning, although their success depends on how this time is used.
    - Effective teaching seems to be related to an intense and rapid pace, where teacher and student interact in short episodes.
    - The length and depth of instructions should be adapted to each student, determined by age and level.
    - Low levels of oral practice should be combined with a notable presence of other types of practice, namely: guided, modelled, and imagined. However, these should not be used in detriment of physical practice, as repetitions have a key role in the acquisition of motor skills.

All these matters related to effective teaching are usually associated to experienced teachers. However, the fact that teachers in the ML group showed procedures and parameters similar to those teachers with the highest levels of

recognition supports the idea that these teaching skills can be enhanced through appropriate training.

Further research

This study could be seen as a starting point for further research on the distribution of the lesson time and the strategies that teachers use in order to provoke learning in their students. It would also be interesting to consider teachers and students who show different levels of expertise, experience, motivation, age and who apply other pedagogies to those already analysed here.

A balance of the different types of practice seems to be related to effective teachers (see video example 11.1), although it would be convenient to isolate these parameters from other interferences/factors such as the age and level of the students, the institution where they receive the tuition and the educative system that determines the syllabus teachers must follow. The influence of teachers and students' motivation should also be considered as it could be assumed that the high level of positive motivation shown by most of the participants in this study does not reflect the real situation of string teaching, as less motivated teachers and students might be found in those who refused to participate in the experimental studies. The less experienced teachers participating in this study have at least nine years of teacher experience, so further research with beginner teachers (those who have been teaching for one or two years) could show more evidence about teachers procedures and the impact of a training in ML. It would be interesting to corroborate the similarities founded in the data obtained from the most prestigious teachers and from those who have received systematic training in ML, and to determine to what extent this training can accelerate the evolution of teachers' procedures increasing their effectiveness.

Appendices

Appendix A1. Interview with Mimi Zweig.

Claudio Forcada (CF) interviewed Mimi Zweig (MZ) at the Jacobs School of Music in Bloomington (Indiana, USA). 17th, April, 2010:

CF: Good morning Mimi. Thank you very much for this interview and for receiving us at your university.
MZ: Thank you for being here. It's my great pleasure.

CF: Mimi, you are leading one of the most successful string programmes in the world. Some top players such as Joshua Bell have already studied here and your outstanding faculty includes names such as Susan Moses and Brenda Bremmer.
MZ: The String Academy is part of the Jacobs School of Music with a really wonderful faculty. With such illuminaries such as Jaime Laredo, Janos Starker, Atar Arad, Mauricio Fuks, Henryk Kowalski… I could go on and on. I think we're very fortunate to be the string academy in the Jacobs School of Music because we're surrounded by a wealth of musical well-known professors and performers.

CF: Could you tell us about the origin of The String Academy and how it turned into the successful programme that it is nowadays?
MZ: I would love to do that. The String Academy has been here now for 35 years because I've been in Bloomington for 35 years. I love the story of its origin because it is something that started from nothing and grew into something that is quite wonderful. I moved to Bloomington with my now ex-husband. I was 25 years old. There was a woman on the faculty in the Music Education Department who had always wanted to have a string programme at the School of Music. She went to Charles Webb, who is our Dean, and asked him if it was possible for Mimi to start this programme. I'm sure Charles said, "Who's Mimi?" I had no credibility at that point.
I had graduated from conservatory and from university. I had played by that time in the Syracuse Symphony and the American Symphony with Talkovski in his last year in New York. I had done a little bit of teaching, but I thought that at that moment I already knew a lot about teaching, which is probably a valuable thing because that's the folly of youth. Charles Webb said, "Sure, you can start a violin programme in our school as long as it doesn't cost us anything." So I said, "Fine, I can easily do that."

Within two to three years I had probably 35 or 40 students already. They were just coming from every place. In my first class was this little boy whose name was Joshua Bell, who has turned out to be one of the most magnificent violinists in the world. By the end of the third year I needed help, so I went to Charles Webb and said, “Dean Webb, please I need some help. Can you help me?” He said, “Sure Mimi, I’ll give you an assistant.” So that was the beginning of my assistant and the beginning of building my programme. Over the last 35 years we’ve grown into a programme of about 110 violinists, probably 40-50 cellists. The level ranges from the very youngest students of 4 to 5 to the oldest who are sixteen to eighteen and ready to graduate from high school. Of course the range of ability goes from the very beginning to the highest levels of artistry. If you had asked me 35 years ago what I would be doing today, I would say, “I don’t have a clue.”

CF: Many people can create violin programmes, but what is your view in this programme, your model? What influences have you received in order to create your own programme?

MZ: That’s a very good question because it’s difficult to create something out of nothing. If we look at almost everything that we do in our lives, it has to come from experiences that last hundreds and hundreds of hours. But I can tell you that when I had just arrived in Bloomington, there was a very significant concert that I went to. This was a concert given by Betty Haig who has a very excellent violin programme in Chicago. She brought her kids to Bloomington to play a concert, with the children playing in groups and playing solos. I was at that concert and I can tell you an American expression, ‘I was totally blown away’. I had never seen anything like this before. I had never seen kids playing at such a high level at such a young age playing musically and beautifully in tune. I said to myself, “This is what I want to do”. A couple of weeks later I got on a train and I went to Chicago and I sat with her, as you have sat with me in the last few days, to see ‘how does she do this?’ I then came back to Bloomington and that was my model. Not only was that my model but I can say that my education was my model. Striving for excellence in terms of musical beauty and in terms of technical security: playing in tune with a beautiful tone, and rhythmically. Also, the model of human excellence, of sensitivity and encouragement and of passion for what we do. I can say that that has come from my teachers: from Louis Krasner with whom I studied for many years as a teenager, and Tadeusz Wronski with whom I worked in Bloomington when I first arrived. Of course, all of the people around me when I came to Bloomington who have such high standards of musicianship and also who are human beings of the most admirable order.

CF: Mimi, I remember the first time I met you in Alcalá, in Spain. When we watched the videos of your students everybody was impressed. Automatically we thought, "Wow, Mimi's students must undertake a hard acceptance process." What are your criteria to accept students, and what do you expect from them once they have been accepted into the programme?

MZ: Let me start by saying I've built programmes in a few different places in this country. It's possible to build a programme any place. When I first came to Bloomington people said, "You can't build a violin programme. They're such a small town and there's not really so much of a need." But of course, as I said before, with the audacity of youth, you just go ahead and do what your passion tells you to do. So I believe that a violin programme, a violin/cello programme, a piano programme, ballet programme, can be created any place. It depends on the person that's creating it, on their knowledge, on their ambition, on their ability to undertake challenges, because children are the same right throughout the world. There are talented children every place. Most children are bright and curious. We just have to captivate that element in these children before they get too old. In our programme here we don't audition students. Maybe we audition the parents because the parents initially are very involved. The parent in the beginning stages has to commit to coming to a private lesson every week, to coming to a second private every week with an assistant teacher and with a helper from the pedagogy class; and to a group class. In that way the parent makes the commitment. If the parent is willing to undertake these obligations, we'll of course accept the student. The students begin in the beginning group, which meets every week for one hour. In this beginning group we play things together. Each student has the chance to play a solo when they're ready, so from the very beginning they're getting the experience of being a performer, which is what we're about. Then we add some theoretical information: how to read music, how to count, how to solfège, how to identify intervals, etc.The most important of all this, of course, is the private lesson.

The private lesson allows each student to learn at their own speed. The group lesson gives students the opportunity to be together. What you see in these groups is from the very beginning when they're 5 and 6, these kids come together every week and they love each other, they hug each other and they play together. Sometimes they talk too much together, but you can see that we're having a good time, which is what we're all about. My philosophy is that learning should be fun and it should have a direct result that we see – that there's something excellent coming out of that learning. That whole process begins when these kids are five, six or seven, which is

when we begin them. As they develop we put them into more advanced groups. We base our groups more or less on the Suzuki Repertoire. I'll talk a little bit about how I'm not a Suzuki teacher, but I use the Suzuki Repertoire in the beginning. Now in our string academy we have 11 different violin groups plus at the very top we have a group called the Violin Virtuosi, which are the students playing at the most advanced level, and these are the students that go out into the world and play concerts and we'll talk a little bit about that later also. Each group is based on the same foundation, which is that the children are learning to play together, which means they are learning to play in tune together, to articulate together, to phrase together, to be musical together. They become fantastic chamber music players and they become orchestra leaders. Also a segment of the group is devoted to solos. As I said before, our kids are… We want them to be performers, so if we build this into their routine from the beginning, they basically don't suffer from performance anxiety because they've done it their whole life. They may get excited about performing, which is what we want and then they're able to funnel that energy into making a more expressive, more beautiful, more passionate performance. The third element of the group is the theoretical training. Ear training is so important at the early level, at the early ages, because it's easy for them. If we wait to introduce ear training to our students when they're sixteen or sixteen, that becomes more difficult for them, so we want to train their ears. Basically we're wanting to create a complete musician, somebody who plays beautifully, who has a secure foundation, a secure set up of the physical knowledge of playing the instrument, that they have the ability to play together in chamber music groups and they play in a chamber orchestra as they get older, so they have the ability to be an orchestra musician. Primarily, they're playing at the highest possible level for themselves. The expectations are high for each, but specific for each student. We can only ask each student to do what they're capable of doing. Our students seem to want to do this because it's fun. I wish I could tell you that I have a whip hidden in my closet, but we don't. We want to keep our students self-motivated and of course, be passionate about what they're doing. I want to finish this part of the discussion by saying not all of our students are going to be musicians, but those that decide to be musicians, will have the ability to follow that road. The ones that decide to do other things, and there are many of those too thank goodness, because that's our audience of the future, what we want to remember is that all of those years that they're practised, studied and performed, that type of learning is going to stay with them the rest of their lives. First of all they'll have a love for music and secondly they will know how to study anything because they've already studied the violin in-depth, and that in-depth study of one thing will follow through, whether

it's to math or medicine or being a maestro chef. They'll take that with them for the rest of their lives.

CF: I remember that you once said that if you want to do something, do it well, independently if you want to be a musician or not.
MZ: I think, as long as we're spending so much time practising, which in the beginning is maybe half an hour a day, and then augmented to three-quarters of an hour, an then an hour or 2, 3, 4, whatever, we want to have the result of that be something that is really wonderful.

CF: I'm sure that this investment is worth it for their lives. (Exactly!)
You have already talked about the Suzuki Method – what do you think are the benefits of starting with this Suzuki repertoire and not another one?
MZ: Let me maybe back up a little bit and say that the influences in my teaching are Suzuki, Paul Rolland, which in Spain is now very well-known thanks to Anna Baget and Sergio I think, and to you. The third element of my teaching is everything else: the influences from my own teachers. The Suzuki philosophy for me is beautiful: every child can learn to do everything given the correct environment, and in that regard we try to create the environment for the children, which is a supportive parent, listening to music, starting at a young age and of course being encouraging. From Suzuki, his sequence of repertoire is excellent. The children go from 'Twinkle' to a Vivaldi concerto in a progression that is built on such a solid foundation. The beauty of this repertoire is that every new element that is introduced is built on what has been done before, and what has been done before is reviewed. You're not getting one new element and another new element and another, but everything is built on what's been done before. It's really difficult to find a sequence of repertoire like this so I have deferred over my many years of teaching to this repertoire because I see that it works. One thing that we always want to keep in mind is that no method, no sequence of repertoires, no method, either from me or from anybody else, is complete unto itself. So we want to always bring in other influences. In the beginning with our kids we bring in a lot of the Rolland material from Stanley Fletcher. We use American fiddle tunes, Irish fiddle tunes. I have a vast library, which your camera can scan around and look at. We're always searching for music. From Paul Rolland, his influence on me was immense. His whole statement: of using the body in its most relaxed and physical way, is crucial to everything that I do. If we think about it, it's such a simplistic statement in every person who deals with athletes is totally aware of this. You can't run under a mile if you're not aware of what your body is doing. You

can't be a swimmer unless you're aware of how to use your muscles in their most efficient way. Somehow along the way, we string players tend to forget the rest of our body. In my teaching I am always aware of what the body is doing: from the feet up to the top of the head. That's what I take from Paul Rolland, and of course the invaluable contribution of his 14 films that are specific in how to teach specific elements of violin playing: how to hold the bow, how to shift, how to vibrate, etc. Then everything else comes from the influence of my teachers and I put all of this under the umbrella of teaching in a non-judgemental environment. To be non-judgemental means not to blame ourselves for making mistakes. Once we're in a situation where we hate ourselves because we played out of tune, we didn't shift well, we made an ugly sound or had a memory slip, this causes so much anxiety that it causes the body to become a walking piece of tension and then of course, we're paralysed and can't play. So if we train our students and we train ourselves in the process of our teaching, we teach in a non-judgemental environment where we welcome the mistakes. If I play out of tune it's not good or bad, it simply means the finger is not in the right place: it's too high or too low. Then, through many repetitions without anxiety, I will be able to fix that mistake and I'll have it then for the rest of my life. Simplistically, and this is one of my favourite sayings: 'All mistakes occur between two notes'. So myself as a teacher, if I can identify those two notes, I'll have the solution for my student. Or the student practising can identify the two notes between which they made a mistake. As they develop, they themselves will also know how to fix that mistake: with very relaxed, many repetitions, and then they'll have accomplished that task.

CF: All teachers know the importance of acquiring a good foundation from the very beginning. What do you think are the main aspects for a healthy foundation?

MZ: For me the healthy foundation is crucial, as you just said. I feel that my contribution to the world of pedagogy is having an understanding of this healthy foundation and trying to help other teachers to understand this. It's so basic and in a way it's so simple I think that many times, as we start working with more advanced students, we forget to look at that basic foundation. When somebody's playing a Paganini Caprice we're not necessarily going to look at their feet. Yet, if we look at their feet, it could help the Paganini Caprice immensely. I think one of the benefits of my working with the very beginners up to the most advanced levels, is that it keeps me in touch with this foundation. So, what are the ingredients of the foundation? First of all it's the non-judgemental environment because you can't have a healthy, relaxed body in a tense environment. It's understanding the relationship between the head,

the neck and the back. The body is always lengthened in its most natural state so that it can support the instrument. It's understanding that the joints have to be continually flexible. The joint that is so often forgotten is this ball and socket joint in both arms. It's the joint that is able to turn 360 degrees. We're able to do anything if we're flexible in that joint. It is being able to manipulate the bow with the most suppleness of bow position, knowing when to extent the tension and knowing when to release. It's a left hand that has an understanding of its balance. And knowing how to shift. What we find so many times is that students simply don't know how to shift. They don't understand that shifting is the infrastructure of our transportation system on the fingerboard. That there is a way that we get from one note to the next note and that is easy to teach, easy to practice, if it's done.

CF: You have said that you try to instil this healthy foundation from the very beginning, but sometimes teachers must accept students that have already been playing for many years and who haven't acquired these habits. So, how do you suggest that teachers can work with these students, who need to adjust their habits and polish their basic technique?

MZ: That's a very good question because it's so important. I think it's so important to go back and address the foundation and what I did, I spelled it out so clearly in stringpedagogy.com, but briefly, what I do with all of my students, at whatever level they come to me, I again start from the beginning. I say, "Let's look at the feet. Let's look at the length in our backbone, and the relationship of our head, neck and back. Let's look at the flexibility of the joints. Let's look at how we're holding the violin". One very basic thing: You would think that after fifteen years we would know how to hold the violin, but you see that there are many people that still haven't quite figured it out, and how to use the bow. I do all of these things using scales, Kreutzer etudes, if the student is advanced enough to do Kreutzer etudes, shifting exercises: Sevcik Opus 8 and other simple shifting exercises that I've devised; vibrato exercises; and then putting the appropriate repertoire with the student at this point that they're undergoing their rehabilitation – or I like to say, establishing their healthy foundation.

CF: We have been talking about teachers. What do you think are the basic skills that performers need to acquire or develop in order to turn into successful teachers?

MZ: Teachers are not necessarily the greatest performers, and the greatest performers aren't necessarily the greatest teachers. Sometimes they come together

in a wonderful way, but the interesting thing is, if an artist has been well-taught as a child, hopefully they don't remember what their teacher told them because it's been incorporated into their body by osmosis, through all the senses. If an artist remembers what their first teacher told them, probably it wasn't done well. You can talk to any of these great performers and I'm sure they don't remember anything of their beginnings, so it's very helpful for performers and players, who want to be teachers, to have an understanding of pedagogy. We know that if we present things in a systematic way, most likely it will be successful. We also know that if we have a good sequence of repertoires, that one ingredient builds on another, it's more likely to have a successful result. We also know that there's a way to teach things. There's a way to teach shifting, a way to teach vibrato, there's a way to teach the bow strokes, a way to teach bow division, understanding how we use the bow to make it musical. We know that there's a way to teach how to play in tune. If we can train people who want to be teachers, and give them the skills to do these things, they're going to be successful teachers. I find that it's beneficial if the teacher can do all of these tasks themselves. They don't have to play a Tchaikovsky concerto, but if they themselves know how to play a martelé or demonstrate a spicatto, or can demonstrate the use of bow division, whether it's in Suzuki Book 1, in a Vivaldi concerto or a Haydn G Major concerto, they'll then have a better understanding of how to have their student understand what to do. For us as teachers, we always want to keep in our mind the beauty of the music. First of all, everything that comes out needs to be rhythmical, needs to be in a good, rhythmic foundation and understanding, needs to be in tune, and it needs to be with a beautiful tone, whether this is something from Book 1 Suzuki, a Telemann concerto or a Paganini caprice. My standards for that remain the same, I think because I want it to be that way, and I have the information to give the student to have them make it that way, if they practise of course, then that's what creates students who can play with ease and at a beautiful level.

CF: We have been talking about so many things in this interview. We have talked about the role of the parents, the repertoire, the teachers, the pupils, but there is a final question that I would like to ask you. One thing that caught my attention when I was observing your students playing is that all of them play from memory, always and at any level. Could you please tell us why you think it's so important to play from memory, and how do you develop this skill from the very beginning?

MZ: Memory is a habit, like everything else that we do, and the habit starts at the very beginning. In the very beginning stages, for the first two or three months, the

students are learning how to play the violin only by listening to recordings or listening to their teacher, or listening to the other students in the group. As soon as they are reading music we still have them memorize all of their repertoire. Whenever they perform, they perform from memory, so for them memory is not a problem because they've done it all their life. If I have an older student who comes to me who's never memorized before, it's difficult. I begin with music that's a little more on the simple level at first so they can memorize that. The brain is a muscle so we always have to open that muscle for new skills. If we start at a less difficult level and progress to a more difficult level, they will have it. But for our children, that grow up from the age of five or six until they're sixteen or eighteen, it's just like breathing for them because they've done it since the beginning.

CF: Well, just to say a big 'thank you' for this interview, for your hospitality here and your generosity in sharing your huge knowledge and experience with us. I'm pretty sure many teachers are going to be inspired by your testimonies and will be encouraged to go deeper into the field of violin or string teaching in general. So thank you, thank you very much.

MZ: Thank you very much, and thank you for coming all the way from Spain to my little studio at Bloomington.

Appendix A2. Interview with Kato Havas.

Claudio Forcada (CF) interviewed Kato Havas (KH) at her place in Oxford (United Kingdom). 14th, February, 2011:

CF: Kato, which values do you try to transmit to your students at your lessons?
KH: To be happy and free. To love music and to make it possible that they enjoy playing, so they can transmit their own enjoyment to the listener through the violin, through music, so they are not concerned about themselves. They are free physically so they are able to transmit the composer; to recreate the composer. Not replace it, just to recreate the composer. When you are a very happy person, Mozart goes through you, so there are no tensions.

CF: My second question is about teachers. You have been a successful violinist but also a wonderful teacher, so what do you think performers, violinists, need in order to be good teachers?
KH: That is a very difficult question because, very often, a wonderful violinist teaches what he was taught. I told you before, I had an example when a pupil of mine went to (David) Oistrak. He taught to hold the fingers down, to hold the violin all the things I do not teach but he does not do it himself, so he was teaching what he was taught and what he is doing is only instinctive. His talent is so great that he does it instinctively.

CF: Maybe these people do not know how to teach because for them it is so natural.
KH: Not necessarily. The two do not go together necessarily. In fact, very often, in a little village, the first teacher is the one who really helps, and people use the big names they are better publicity, but not necessarily so. Because they do it by nature and they do not teach.

CF: Those people who are not so talented, and sometimes they are the best teachers, why do you think?
KH: Teaching is a gift, what means that you can communicate and be identified by the pupil. A great player does not necessarily do it. What a great player can do is inspire.
When I was a young girl and heard Kreisler at a concert, I played like an angel for a month, and then I went back to the way I always played.

CF: So, Kreisler inspired you?
KH: Yes, I was, but he never gave me a lesson, I only heard him.

CF: How do you think the New Approach can help teachers to be better teachers?
KH: Ordinary teachers, you mean? I don't teach great players. People come to me with problems. Most of teachers, I might just say, because they have an interest in the New Approach or because they have problems themselves or they come from orchestras. I developed the New Approach when I stopped playing for eighteen years because I got my children, and then I realised why there is the reason for so much unhappiness in our string world, in our violin world. Why they have to see doctors and physiotherapists? There is a big problem in our world. Then you can release the problems when you realise why the problems are and not just teach them to prevent the problems. I am not teaching them, I prevent the problems.
There are a lot of materials in my books, in the DVDs, in Youtube, you name it. Because this is a very big subject, because the biggest problem is the optical illusion. Because when you see when you are playing, the vision from here is on your fingers, in your hand. So you learn to put the fingers down and to move the bow. So you learn from the first lessons onwards to play from outside inwards, which blocks the natural from inward to outside energy impulses. So this causes a lot of blockage, physical blockage and energy, and then you can go step by step to prevent the optical illusion, so you are going to sing, to learn to do everything from inside-out with your inner energy, with your voice, with your rhythm pulse, and not try to play like a real world? People in Venezuela, they do it naturally, but not in the rest of the world and so I am teaching them how to do it normal, I am not going into these enormous physical contortions. There is a lot of practice and method. The music is there, because you are trying so hard to play, especially when you teach children. To teach them music and imagination and love, and love for the instrument, and fun. And please! Stop them being trying to be good. They do not have to be good, they have to love it, and they have to know how to give. Trying to be good is awful!

CF: Sometimes it creates more tensions.
KH: Of course! Yes! And there is unhappiness! People are very much in their inside, psychologically, over gifted. They cannot give the gift through. There are big problems, mental and physical problems. And to hear the violin sound change. It is all physics! Because violins are tuned in fifth and if the over tones cannot meet in the

air because of the physical blockages, the very fine instruments suffer because the vibration stops.

CF: Don't let it free?
KH: That's right! It is a very long story. Basically is freedom and easiness and prevention. Energy from inside outside and singing is essential! Violinists usually keep their lips for so long together. They don't sing. The inner ear gets folded up. When these things get released, its like a flower inside you covered in rocks and then, when you remove the rocks, it starts scrolling. And when you develop your inner ear and your rhythmic pulse, yes! Then you read music. When you see the music, you see fingers, you see bow, you see difficulty. Instead of seeing the music, seeing the intervals, seeing the flow.

CF: Too many problems.
KH: Yes! All instruments are lovely, but the violin is something very special. Because it is so response. To hear people you give them the idea of what to do, and the violin suddenly says thank you! You just hear the change of the tone. That why is so exciting, more that being better or playing faster!

CF: In your books, I also remember you said at your workshop that the NA is not a method, it is an approach, so we can say that the NA can be used by many teachers independently of the method that they use. Many different teachers who teach with many different methods can use the NA?
KH: Yes! The NA is physical – mental, and almost spiritual, actually, because it is the power of the interrelated energy balances. When you walk you use a lot of movements that you are not aware of because you are natural, but when you put natural movements into violin or in the bow it when I say it is an approach, I did not invented it, I discovered it. Which is really how you are going to it, the attitude you go for it. Is it going to be a difficult thing to do, or a lovely thing to do? And why? How can it be possible to meet the clue? So, if you teach from outside inward, and you have physical blockages, you cannot have a NA attitude, because they will not allow you. For the NA you have to have physical freedom.
If the violin is not part of you, in partnership and live on it, not with it, and if you are not full of imagination, if you don't hear the composer… Any art forms is connected with other art forms, so playing the violin is an art form, because you are playing recreating the composer without being heard, and that is your play.

You can only go back to an sculpture, or a painting but you cannot go back to Mozart, you have to recreate it, and that is the NA. If you have a problem in you shoulder, or a problem in the WHOLE, or injuries in the fiddle, you cannot give. You have to be physically free. This is part of the NA and how it comes to all of you. I did not invent it, but they are there and I discovered it. And the result is instantaneous, not slowly getting better. It is either easy or it is impossible.
If you are artistically honest, if you have artistic integrity, if you are not happy unless is fully there, and it is not fully there, it makes you feel miserable. So I don't advise people to learn the violin.

CF: Unless they do it well?
KH: They could learn any instrument. They have to have a real love for the instrument.

CF: My research is in Motor Learning; how we learn movements and how we teach movements. Reading your books, in your workshops, I have found that you talk about many things that I studied in my research. You talk about memory, about imagination, about motivation so I have some questions about how you consider movements in the NA. How does the NA consider the teaching of movements?

KH: I start with the rhythmic pulse. I start making them sing and clap so the whole body is in movement, so I teach them to release tension of standing straight and still. So they have the rhythmic pulse to voice and the imagination. So I have to hear the music when they sing it and I don't try them to sing beautifully but I want them to hear what the composer wrote. It can be a tune. Is it the same tune or is it a jolly tune? But it has to make a meaning through the voice, the clapping. The idea is that you are only in horizontal imagination and horizontal movements, because from the vertical is before they touch the violin. The idea is they are horizontally continuously moving. Is the flow. This can only come from inside outward. So there are exercises, singing, clapping, the rhythmic pulse, the horizontal movements that release the arms, the flying, the up and down going horizontally, the wrist, so every joint is fluent before they go to the violin.

CF: So you consider that the musical expression is connected to movements? The pulse?

KH: Absolutely, the whole body and if you have a stiff joint, it will not go through. It's like the river, the source is the start and then grows and gains energy and gets bigger and bigger, but it comes from the source.

CF: So musical expressions and movements and technique, everything is connected and should be considered at the same time?
KH: In the service of music making. If you make a movement, just for the sake of the movement, that won't help you musically, but you do it because is in the service of music making. If they are coordinated, then you are making music. Music is an eternal flow. You cannot have special methods of movements. You have to find your natural movements, which is much more powerful than I am.
Everything is accompanied by singing, the voice is the most important thing. And that is very seldom told to my knowledge. There are many, many excellent methods, but the idea of singing, so the violin sings because you sing, you make it sing, it is a singing instrument and it is in your care!

CF: It is very interesting to see how many teachers use memory and you recommend always playing from memory.
KH: In my experience, the players are so busy thinking Am I right?, Am I doing it?, Do I remember? Their mind is so unfocused and nervous that they depreciate themselves, instead of learning how to anticipate. The whole thing is anticipation. In a ballet, the ballet dancer does not remember what she should be doing, each movement anticipates the next one, and this is what we don't do, because we are too busy playing instead of flowing, instead of giving the music. We are not aware of the drama of the intervals, we are not aware that only the left hand can do the intervals, we give a lot of task to the bow, because the left hand is simply to stiff to do it. So imagination yes! Without imagination, there is nothing that is part of it, not something separate. Playing by heart is a nice English expression, but playing from memory is a terrible thing.

CF: Maybe I didn't explain it right .
KH: Without the music?

CF: Yes, I meant the music as a barrier between the audience and the performer.
KH: Yes. But the violinist is between the composer and the audience!

CF: I mean, it is an extra barrier, a piece of paper in front of the audience.

KH: If it is in your ear, the inner ear is very powerful, if you develop it, if you sing it, each note is there, prepared to the next one, unless you manufacture each note by itself, it is part of Mozart. It's the flow. It is the constant flow. The horizontal flow. The moment you are vertical, and the moment you stop it, you become unhappy, the violin becomes even more unhappy. I am more concerned for the violin than I am for them. This is true. Because the violin is in their hands and when I hear them making hum! It touches me. I don't teach memory, but anticipation instead.

CF: What you said about imagination, I remember when you asked me to imagine that I was playing the violin, miming, also to evocate the music without the instrument by walking and imagining I was playing the music. Why do you recommend that?
KH: Because you have to become the music. Is not just the violin and the bow and good vibrato and good shifts. You are the music and the violin is the transmitter. If the music is not in you, if you don't sing it and it is not part of you, if you have to work for it, so is not to practice with the violin and the bow until you clear the music and make the same mistake and if I've done that mistake, we come back, so you do it well and play that afterwards. That's no way to perform, or to love. Or to live! Yes! Sing it, because we are not in a rest like in the singing world. Do you know what the teachers do in this programme in Venezuela? They are so alive.

CF: How they transform the society through music.
KH: I am a great admirer.

CF: These children play with a special energy and communicate.
KH: And enjoy!

CF: That's the main point.
KH: I don't go to hear violinists very often, because I am so anxious for them. I rather go to the circus and admire the flow of them, they are giving a wonderful time doing difficult things, doing it easily. I admire their skill, their anticipation. I love Opera. But I have seen so many times playing bad. It makes me very unhappy.

CF: I read something about kinaesthetic. When we touch the student to transmit a sensation or a feeling. How do you think this can help?
KH: Because you put the finger exactly where… like here … and opens this up, the violin will say ah! Touching is very important and they ask me to teach them that to

feel the difference in the tone of the violin. People play and sing and I can hear it, and stop singing and I can hear it. You could hear it too. And that's why it is so exciting.

CF: I remember with myself.
KH: That's why I love teaching.

CF: So as a teacher, we can transmit more information touching than talking. It will be more effective.
KH: That's right! Mostly to teaching back I can see that, if I can hear it.
The whole problem is the optical illusion. The blockages that we don't see. The problems we don't see and so, we don't believe. The problem is the duality, the complexity, *"I want to do it, but I can't"*. You have to know what you are doing, why you are doing it and enjoy doing it because you because you are making music and that's a lovely state to be in. And then you can teach it. You are very happy. I can tell you how much enjoy teaching, even if you are younger!

CF: Everybody talks about motivation, teachers, parents and pupils. Everybody is so worry about motivation. What do you think is the role of the teacher in pupil's motivation? And how can teachers help students to be motivated?
KH: To make them so exciting about playing! So privileged and so happy! A music lesson has to be full of joy and love it! And music is a wonderful thing! And rises their imagination. What this piece all about? Don't tell me about the composer's dates. I want to know if he likes chocolate cake, I want to know who he is, what you are playing. The imagination can't grow if you are not comfortable and happy physically. that is the first thing, there are exercises with the violin, they are so well documented. I don't just talk, we do! It is a very busy art.

CF: Which is the role of the parents in violin teaching? How can parents help?
KH: That is a big question. It depends on the parents. I don't teach children but occasionally I see a child. I don't see the parents, I see the movements. If parents are ambitious or worried about the child I put the music stand between them and the child. I involve them, and they can see the difference and I involve them in games. Oh yes! I do that!

CF: So you think if we involve parents when we teach children everything can be easier?

KH: Yes because they know what we are doing. They have not come to be anxious if we do it well. It is an active thing, it is not the theory. And then they can hear it and feel good. If they are really so, I put the stand there and divide ourselves.

CF: Would you like to add any recommendation to young teachers who are starting their careers?
KH: To read the NA. They have to know why they want to do that. There must be a reason. If they do it for the right reason, they will be all right. Because I know teachers who do this instinctively. A teacher has to be gifted. Teaching is an art form, not a job. Teaching is an art, specially a violin teacher. My goodness, he must love it! And so he will not need to follow anything, just his own instinct. As long as the violin is happy…

CF: That was all. That you very, very much for this time, for your answers.
KH: It was my pleasure. I hope that you will have a lovely result from your PhD.

Appendix B. Instructions for teachers about the empirical studies.

- The level of the students participating in the study is irrelevant.
- All participants, teachers and pupils, should sign the authorisation attached (please write legibly). The authorisation includes information related to aspects such as confidentiality. For students under age eighteen, a parent or guardian should sign the form.
- Questionnaires for teachers as well as for students are attached. Pupils aged 8 and under should be assisted by a parent or guardian.
- A minimum of 4 individual lessons will be filmed (ideally six) spanning 30 to 60 minutes per lesson.
- The video camera will be placed so that pupil and teacher (as well as the parent, if present) can be clearly observed, and with as little disturbance as possible.
- The length of the recording will include the whole time that the teacher spends with the student: from the welcome to the farewell, with no stops.
- For those receiving the recordings, the format is MP4 or any other compatible with the following programmes: “VLC media placer” or “Quick Time Player”.
- All participants will receive a final report with the outcomes if requested.
- For clarification, I can be contacted at the email address provided.

Appendix C1. Teacher questionnaires.

Instructions:

Please write short answers in the open questions.

- Write what you really think or do; not what you think I would like to read.
- Leave blank those questions that you do not understand or which are not applicable to you. Please specify: 'Question not clear' or 'N/A'.
- All the data included in this questionnaire will be treated anonymously, and will be used only for academic purposes.
- Every participant in this experimental study will be given a registration number so their names and personal data will never be published.
- If you want to receive feedback with the final outcomes of this research, please indicate here your email address:

.....

- I have read the instructions above and I agree to participate in the study developed by Mr. Forcada as part of his research.

Signed.....

Personal Details

- Birth Date/Today's date (DD/MM/YY):
- How many years have you been teaching?
- Institution where you teach (music school, college, conservatoire, etc):
- Ages of the pupils you teach. Please tick all that apply:

  __Under 8 __8 to 11 __12 to 17 __18 and over

- Levels you teach (please tick all that are applicable):

  __Beginners __Intermediate __Advance

- Type of lessons you teach. Please tick all that apply:

  __1 on 1 __2 pupils at a time __3 pupils at a time __larger groups

- If you teach groups, pupils in the same group are:

  __Same grade/level __Different grade/level

  __Same age __Different age

- Are you an active performer? Please tick all that apply:

  __Professional ensemble __Soloist/recitals with piano

  __Professional orchestra __Amateur orchestra

  __Sporadic gigs

Memory

- How often do you ask your pupils to play from memory?
  - __Concerts
  - __Exams
  - __Lessons
  - __Never
  - __Other (please, specify)
- Do you teach your students how to improve their memory?

  __Yes __No
- Do you check which strategies your pupils use to memorise pieces?

  __Yes __No
- If you answered 'Yes' to the previous question, what strategies do you use?

- Which strategies do you ask your pupils to use when memorising?

  __Listening to the recording

  __Analysing the structure of the piece

  __Dividing the piece in sections

  __Visualising the notes without the violin (on the bus, walking, etc)

  __Imagining they are playing the piece without the violin

  __Playing the whole piece recreating performance conditions (with an informal audience, in concert dress, on stage)

__Other (please specify)

- When you teach a new technical skill you usually...

__Play an example

__Give my pupils a brief explanation

__Give my pupils a deep explanation, checking that they understand how the new technique works

__Other (please specify)

- Please feel free to add anything that you consider relevant.

THANK YOU FOR YOUR CO-OPERATION

Motivation Questionnaire (teachers)

Instructions

- Try to write short answers in the open questions
- Write what you really think or do, not what I would like to read
- Keep in blank those questions that you do not understand or which are not applicable to you. Please specify: 'Question not clear' or 'N/A'
- All the data included in this questionnaire will be treated anonymously, and will be used only for academic purpose
- Every participant in this experimental study will be given a registration number so their names and personal data will never be published.
- If you want to receive feedback with the final outcomes of this research please indicate here your email address:

.....
.....

- I have read the instructions above and I agree to participate in the experimental studies developed by Mr Forcada as part of his research

Signed.....
.....

Motivation (teachers)

1. Why did you start teaching music?

    a. I loved children and teaching

1	2	3	4	5	6	7

    b. Good working conditions (salary, timetable, etc)

1	2	3	4	5	6	7

    c. It was the only work I found

1	2	3	4	5	6	7

2. Why do you teach music nowadays?

3. Do you like teaching? (1 no, 7 absolutely)

1	2	3	4	5	6	7

4. Do you enjoy playing music? (1 no, 7 absolutely)

1	2	3	4	5	6	7

5. I listen to classical music (1 hardly ever, 7 everyday)

1	2	3	4	5	6	7

6. The support you receive from your institution is:

    __Non existent _Poor __Average __Good __Very good

7. The frequency you meet the other teachers who teach your pupils is:

    __Never __Once a year __Once a term __More often than once a term

8. The frequency you meet your pupils' parents is:

__Never

__Once a year

__Once a term

__More frequent than once a term

9. Do you have difficulties motivating your pupils? (1 non at all, 7 certainly yes)

1	2	3	4	5	6	7

10. Which strategies do you use to motivate your pupils?

__I try to be funny and make jokes

__I encourage them to persevere in order to success

__I transmit them my love for music

__I organise concerts

__I encourage them to socialize with other piers.

__I involve their parents and families in the educative process

11. Your pupils are highly motivated to attend your lessons (1 disagree, 7 agree)

1	2	3	4	5	6	7

THANK YOU FOR YOUR CO-OPERATION!

General Questionnaire (teachers)

Instructions

- Try to write short answers in the open questions
- Write what you really think or do, not what I would like to read
- Keep in blank those questions that you do not understand or which are not applicable to you. Please specify: 'Question not clear' or 'N/A'
- All the data included in this questionnaire will be treated anonymously, and will be used only for academic purpose
- Every participant in this experimental study will be given a registration number so their names and personal data will never be published.
- If you want to receive feedback with the final outcomes of this research please indicate here your email address:

.....
.....

I have read the instructions above and I agree to participate in the experimental studies developed by Mr Forcada as part of his research

Signed.....
.....

Personal details

- Date (DD/MM/YY):
- How many years have you been teaching?
- Institution where you teach (music school, college, conservatoire, etc):
- Ages of the pupils you teach:
  __Under 8 __8 to 11 __12 to 17 __18 and over
- Levels you teach (please tick all that are applicable):
  __Beginners __Intermediate __Advance
- Type of lessons you teach (please tick all that are applicable):
  __1 on 1 __2 pupils at a time __3 pupils at a time __larger groups
- If you teach groups, pupils on the same group are:
  __Same grade/level __Different grade/level
  __Same age __Different age
- Are you an active performer? (Please tick all that are applicable):
  __Professional ensemble __Soloist/recitals with piano

__Professional orchestra __Amateur orchestra

__Sporadic gigs

Principles/values

1. Why would you recommend someone to learn how to play the violin?

2. Which values do you try to transmit at your lessons?

3. How do you try it?

Motivation

4. You are passionate when teaching (1 disagree, 7 agree)

1	2	3	4	5	6	7

5. How do you think your pupils see you? (1 not at all, 7 absolutely yes)

   a. Serious

1	2	3	4	5	6	7

   b. Loving

1	2	3	4	5	6	7

   a. Committed

1	2	3	4	5	6	7

   b. Entertaining

1	2	3	4	5	6	7

   c. Enthusiastic

1	2	3	4	5	6	7

d. Peaceful

1	2	3	4	5	6	7

e. Energetic

1	2	3	4	5	6	7

f. Demanding

1	2	3	4	5	6	7

g. Adaptable to each individual

1	2	3	4	5	6	7

6. Which of the previous perceptions would you like to add or change?

7. How do you feel when teaching?

   a. I mostly enjoy it (1 disagree, 7 agree)

1	2	3	4	5	6	7

   b. Frustrated (1 disagree, 7 agree)

1	2	3	4	5	6	7

   c. Bored (1 disagree, 7 agree)

1	2	3	4	5	6	7

8. How important are the following reasons in your decision to teach violin? (1 not important, 7 very important)

   a. Salary

1	2	3	4	5	6	7

b. Holidays/timetable

1	2	3	4	5	6	7

c. I love music

1	2	3	4	5	6	7

d. I love teaching children

1	2	3	4	5	6	7

e. Others (please specify):

Programming

9. You adapt in writing the syllabus of your department (or your own syllabus) to every pupil in particular (1 never, 7 always)

1	2	3	4	5	6	7

10. Do you check the syllabus from time to time to update it? (1 never, 7 very often)

1	2	3	4	5	6	7

11. Do you programme in writing the activities you want to develop every year to reach your goals?

__Yes __No

12. Do you previously inform your pupils which are the goals they must reach during the academic year?

__Yes __No

13. Do you establish the same goals for all the children on the same level/grade?

__Yes __No

14. In your lessons do you usually need more time or finish before the established time?

a. I usually need more time (1 disagree, 7 agree)

1	2	3	4	5	6	7

b. I usually finish before the established time (1 disagree, 7 agree)

1	2	3	4	5	6	7

c. I usually finish all the programmed activities on time (1 disagree, 7 agree)

1	2	3	4	5	6	7

Organization

1. Do you take daily notes of every pupil's `progress?

__Yes __No

15. Do you check that your pupils have noted down all the goals they must achieve before the next lesson?

__Yes __No

16. Do you check that your pupils have noted down how they need to practice at home?

__Yes __No

17. Do you teach your pupils to be self-sufficient?

__Yes __No

18. If so, please specify three strategies that you use to teach your pupils to be self-sufficient...

a.

b.

c.

Assessment

(Informing your pupils about their progress, as well as their strong and weak points)

19. How often do you assess your pupils? (Please tick all that are applicable)

__At the end of the academic year
__After every term
__After concerts
__After exams
__After every lesson
__When I first meet them, after an audition
__Others (please specify)

20. What do you assess?

__Musical expression __Technical skills __Practice at home __Attitude
__Others (please specify):

21. How do you assess? (Tick all that are appropriate)

__I use marks
__I include comments in writing
__I inform pupils and/or their parents orally

22. Do you inform your pupils beforehand about your criteria to do the assessments?

__Yes __No

Attitude and behaviour

23. Do you have problems controlling pupils' behaviour?

d. In group lessons (1 disagree, 7 agree)

1	2	3	4	5	6	7

e. In private lessons (1 disagree, 7 agree)

1	2	3	4	5	6	7

24. How do you try to keep situations under control? (Please specify 3 strategies)

25. My pupils are well motivated (1 disagree, 7 agree)

1	2	3	4	5	6	7

26. (If the answer to the previous question was 7 do not answer this question) What do you think they are not better motivated?

External cooperation

27. Do you invite parents to get involved in their children's musical process?

__Yes __No

28. If so, what do you ask them to do? (Please tick all that are applicable)

__To attend the lessons
__To participate actively in the daily practice
__To check that their children practice daily
__To participate in the organisation of musical events: concerts, workshops, etc
__Others (please specify)

29. How do you feel when you have a meeting with parents?

__Stressed
__Uncomfortable, it is difficult for me to control the situation
__Bit tense but I can control the situation
__Comfortable

30. Do you prepare in advance meetings with parents?

__No __Yes, I think about it __Yes, I note some ideas down

31. Do you get some conclusions after a parents meeting?

__No __Yes, I think about it __Yes, I note some conclusions down

32. Do you cooperate with other teachers who work with your pupils?

__Yes __No

33. If yes, how do you do it?

34. Do you involve your institution in the activities that you organise?

__Yes __No

35. Why?

36. If yes, how do you do it?

Thank you for your co-operation!

Appendix C2. Student questionnaires.

Instructions

- Try to write short answers in the open questions
- Write what you really think or do, not what I would like to read
- Keep in blank those questions that you do not understand or which are not applicable to you. Please specify: 'Question not clear' or 'N/A'
- All the data included in this questionnaire will be treated anonymously, and will be used only for academic purpose
- Every participant in this experimental study will be given a registration code so their names and personal data will never be published.
- If you want to receive feedback with the final outcomes of this research please indicate here your email address:

.....

I have read the instructions above and I agree to participate in the experimental studies developed by Mr. Forcada as part of his research

Signed.....

Personal details

- Student Age:
- Name of your music centre (music school, university, etc):
- Name of your teacher:
- How long have you been playing the violin?
- What is your level? (Please specify last exam passed, last piece worked on or number of the piece in the Suzuki repertoire if applicable)
- Do you attend other music lessons apart from violin?

__Group lessons/ensemble
__Orchestra
__Chamber music
__Music theory
__Harmony/Analysis
__Others (please specify)

Memory

- How often do you play from memory? Please tick all that apply.

__Concerts

__Exams

__Lessons

__Never

__Others (please, specify)

- I memorise pieces easily (1 disagree, 7 agree)

1	2	3	4	5	6	7

- Which strategies do you use to memorise pieces?

  __I listen to the recording

  __I analyse the structure of the piece

  __I divide the piece in small fragments

  __I read the notes without the violin (on the bus, walking, etc)

  __I imagine I am playing the piece

  __I play the whole piece recreating performance conditions (before an informal audience, concert dress, on stage)

  __Others (please specify)
- Once you have memorised a piece, which factors can produce gaps in your memory when playing in front of an audience?
- How do you think you could improve your memory?
- Please feel free to add anything you consider important in the way you memorise music or to the difficulties you run into?

THANK YOU FOR YOUR CO-OPERATION

Motivation

Personal details

- Type or print clearly the name of institution (music school, conservatoire, university, etc) where you take lessons:
- Your age:
- Your instrument:
- Number of years studying your instrument:
- Name of your present teacher:
- Years with your present teacher:

Reasons to learn

1. Why did you first choose to learn music? Please tick all that apply.

__Parents' decision __ I liked music __My friends played music

__I was offered music lessons at school __I liked music as a profession

__Other (please specify):

2. Why do you study music now?

__I am obliged by my parents __I like playing music

__Because my friends study music also __I want to be a professional musician

3. What will you do with music in the future?

__I will give it up __I will be an amateur

__I will play music professionally __I will be a music teacher

4. I enjoy playing music (1 disagree, 7 agree)

1	2	3	4	5	6	7

5. I listen to classical music (1 hardly ever, 7 very frequently)

1	2	3	4	5	6	7

6. I listen to other types of music (1 hardly ever, 7 very frequently)

1	2	3	4	5	6	7

7. I enjoy practising (1 not at all, 7 very much)

1	2	3	4	5	6	7

Self-concept/Self-efficacy

8. How do you usually feel before every private lesson?

__Stressed and nervous __Worried __ Indifferent
__Quiet and happy __Excited and very happy

9. When I play in front of an audience I feel…

a. Everything is under control (1 disagree, 7 agree)

1	2	3	4	5	6	7

b. Happy (1 disagree, 7 agree)

1	2	3	4	5	6	7

10. I think I am good at using my time when practicing at home (1 disagree, 7 agree)

1	2	3	4	5	6	7

11. In comparison to my peers who study music, I feel I am really talented (1 not talented at all, 7):

1	2	3	4	5	6	7

Social Support

12. Which sort of support do you receive from your parents related to your music lessons and practice? Please tick all that apply.

__No support at all
__Economical (paying the lessons, the instrument or attendance to workshops)
__Driving you to the lessons
__They attend the lessons and take notes
__Helping with the daily practice at home
__Praising you and recognising your efforts

__They are always willing to listen to you

13. How often do your parents meet your teacher to keep informed about your progress?

__Never __ Once a year

__Once a term __My parents attend the lessons and meet my teacher regularly

14. My teacher is supportive (1 not at all, 7 very much)

1	2	3	4	5	6	7

15. What are the 2 aspects that you like the best in your teacher's character or way of teaching?

a. __

b. __

16. Is there anything else that you would like to comment on?

THANK YOU FOR YOUR CO-OPERATION!

Appendix D1. Observation data Zweig group

STATISTICS PER TEACHER

Teachers	Code	% On-task behaviour	% Off-task behaviour	Seconds/value	Values/hour	Oral Time/hour	Physical	Metron. P+G	Guided	Modelled	questions time	Imagined
TZ1	TZ1P1	86.55	13.45	29.88	104.29	204.29	2141.43	0.00	492.86	174.29	102.86	0.00
	TZ1P2	88.60	11.40	21.49	148.42	928.42	1777.89	0.00	0.00	154.74	328.42	0.00
	TZ1P3	83.20	16.80	28.93	103.53	324.71	2170.59	0.00	149.41	176.47	174.12	0.00
	TZ1P4	79.09	20.91	21.98	129.55	392.73	2075.45	0.00	0.00	259.09	120.00	0.00
	TZ1P5	79.37	20.63	16.39	174.29	501.43	2080.00	0.00	0.00	257.14	18.57	0.00
	TZ1P6	79.71	20.29	18.01	159.31	595.86	1657.24	347.59	51.72	217.24	0.00	0.00
	Median	81.46	18.54	21.73	138.98	447.08	2077.73	0.00	25.86	196.86	111.43	0.00
	Standard Devi	4.07	4.07	5.55	29.20	253.75	212.80	141.90	193.72	44.87	119.38	0.00
TZ2	TZ2P1	86.77	13.23	14.27	217.60	522.75	2011.16	0.00	3.86	109.44	476.39	0.00
	TZ2P2	83.59	16.41	18.95	158.82	497.65	1585.88	209.41	16.47	132.94	567.06	0.00
	TZ2P3	75.76	24.24	18.64	146.32	536.84	1649.47	4.21	104.21	268.42	164.21	0.00
	TZ2P4	87.06	12.94	24.11	130.00	722.86	1972.86	0.00	271.43	165.71	1.43	0.00
	TZ2P5	84.88	15.12	17.11	178.60	833.02	1980.00	0.00	0.00	242.79	11.16	0.00
	Median	84.88	15.12	18.64	158.82	536.84	1972.86	0.00	16.47	165.71	164.21	0.00
	Standard Devi	4.61	4.61	3.59	33.75	147.71	204.59	93.20	115.61	69.07	263.53	0.00
TZ3	ZT3P1	68.02	31.98	24.38	68.34	714.42	983.72	0.00	195.35	315.35	240.00	0.00
	ZT3P2	80.44	19.56	31.49	73.98	762.04	44.67	1524.09	218.10	239.12	107.74	0.00
	ZT3P3	81.89	18.11	12.08	199.81	1208.00	520.00	412.00	384.00	424.00	0.00	0.00
	ZT3P4	61.21	38.79	14.69	91.81	670.65	1126.45	0.00	194.52	167.42	44.52	0.00
	Median	74.23	25.77	19.53	82.90	738.23	751.86	206.00	206.73	277.24	76.13	0.00
	Standard Devi	9.97	9.97	8.95	61.70	248.96	490.00	720.06	91.33	109.79	104.44	0.00
TS1	TS1P1	91.25	8.75	19.20	187.50	772.50	930.00	0.00	1030.00	445.00	107.50	0.00
	TS1P2	94.76	5.24	19.53	184.29	518.57	270.00	0.00	1759.29	683.57	180.00	0.00
	TS1P3	92.42	7.58	23.02	156.36	827.27	183.64	0.00	1149.09	272.73	894.55	0.00
	TS1P4	94.92	5.08	11.09	324.55	867.27	1921.36	0.00	152.73	159.55	316.36	0.00
	TS1P5	96.31	3.69	15.08	238.72	970.21	1448.94	0.00	232.34	480.00	335.74	0.00
	Median	94.76	5.24	19.20	187.50	827.27	930.00	0.00	1030.00	445.00	316.36	0.00
	Standard Devi	2.05	2.05	4.59	66.42	168.68	748.76	0.00	673.66	201.57	309.90	0.00

STATISTICS PER TEACHER

Teachers	Code	Oral Values/hour	Physical	Metron. P+G	Guided	Modelled	questions time	Imagined	Types of practice
TZ1	TZ1P1	22.86	40.00	0.00	7.14	28.57	5.71	0.00	5
	TZ1P2	44.21	60.00	0.00	0.00	25.26	18.95	0.00	4
	TZ1P3	31.76	44.71	0.00	1.18	21.18	4.71	0.00	5
	TZ1P4	32.73	57.27	0.00	0.00	34.09	5.45	0.00	4
	TZ1P5	50.00	78.57	0.00	0.00	44.29	1.43	0.00	4
	TZ1P6	41.38	70.34	10.34	2.07	35.17	0.00	0.00	5
	Median	37.05	58.64	0.00	0.59	31.33	5.08	0.00	4.50
	Standard Devi	9.86	14.69	4.22	2.78	8.22	6.73	0.00	0.55
TZ2	TZ2P1	70.82	101.72	0.00	1.29	24.46	19.31	0.00	5
	TZ2P2	51.76	57.65	10.59	4.71	18.82	15.29	0.00	6
	TZ2P3	47.37	62.11	1.05	10.53	18.95	6.32	0.00	6
	TZ2P4	47.14	52.86	0.00	4.29	24.29	1.43	0.00	5
	TZ2P5	60.00	71.16	0.00	0.00	47.44	0.00	0.00	4
	Median	51.76	62.11	0.00	4.29	24.29	6.32	0.00	5.00
	Standard Devi	10.06	19.44	4.64	4.07	11.87	8.52	0.00	0.84
TZ3	ZT3P1	23.73	21.83	0.00	7.59	11.39	3.80	0.00	5
	ZT3P2	19.02	2.11	19.02	10.57	12.68	10.57	0.00	6
	ZT3P3	98.27	29.48	6.55	32.76	32.76	0.00	0.00	5
	ZT3P4	34.36	31.99	0.00	6.52	15.99	2.96	0.00	5
	Median	29.04	25.66	3.28	9.08	14.34	3.38	0.00	5.00
	Standard Devi	36.84	13.53	8.97	12.38	9.89	4.47	0.00	0.50

Appendix D2. Observation data Suzuki group

STATISTICS PER TEACHER

TS1	TS1P1	25.00	72.50	0.00	70.00	10.00	10.00	0.00	5
	TS1P2	64.29	8.57	0.00	66.43	25.71	19.29	0.00	5
	TS1P3	41.82	29.09	0.00	32.73	25.45	27.27	0.00	5
	TS1P4	130.91	136.36	0.00	9.55	28.64	19.09	0.00	5
	TS1P5	97.02	68.94	0.00	7.66	51.06	14.04	0.00	5
	Median	64.29	68.94	0.00	32.73	25.71	19.09	0.00	5.00
	Standard Devi	42.65	49.04	0.00	29.95	14.73	6.49	0.00	0.00
TS2	TS2P1	118.42	75.79	15.79	0.00	55.26	14.21	0.00	5
	TS2P2	50.40	36.00	0.00	0.00	40.80	20.40	0.00	4.00
	TS2P3	75.25	71.19	0.00	1.02	45.76	19.32	0.00	5.00
	TS2P4	51.58	43.16	0.00	3.16	17.89	12.63	0.00	5.00
	TS2P5	81.11	70.00	0.00	1.11	26.67	7.78	0.00	5.00
	Median	75.25	70.00	0.00	1.02	40.80	14.21	0.00	5.00
	Standard Devi	27.73	18.24	7.06	1.29	14.97	5.15	0.00	0.45
TS3	TS3P1	63.67	61.22	19.59	0.00	11.02	17.14	0.00	5.00
	TS3P2	70.00	43.33	31.11	0.00	1.11	10.00	0.00	5.00
	TS3P3	81.18	61.76	31.76	0.88	9.71	15.88	0.00	6.00
	TS3P4	62.22	51.11	0.00	2.22	17.78	8.89	0.00	5.00
	TS3P5	50.00	31.43	14.29	0.00	5.71	15.71	0.00	5.00
	TS3P6	51.92	17.31	49.62	0.00	11.54	16.15	0.00	5.00
	Median	62.95	47.22	25.35	0.00	10.36	15.80	0.00	5.00
	Standard Devi	11.59	17.51	17.06	0.91	5.65	3.55	0.00	0.41
TS4	TS4P1	66.15	32.07	0.00	42.09	18.04	24.05	0.00	5
	TS4P2	73.28	66.41	0.00	68.70	41.22	9.16	0.00	5
	TS4P3	30.66	52.55	0.00	67.88	10.95	15.33	0.00	5
	TS4P4	77.34	29.00	0.00	27.07	58.00	30.93	0.00	5
	Median	69.71	42.31	0.00	54.99	29.63	19.69	0.00	5.00
	Standard Devi	21.31	17.69	0.00	20.41	21.60	9.58	0.00	0.00
TS5	TS5P1	56.71	34.03	0.00	6.81	20.42	6.81	0.00	5
	TS5P2	28.32	22.03	0.00	0.00	6.29	0.00	0.00	3
	TS5P3	70.17	50.12	0.00	2.23	18.94	13.37	0.00	5
	TS5P4	45.06	30.04	0.00	7.51	20.03	2.50	0.00	5
	TS5P5	33.00	27.00	0.00	6.00	0.00	0.00	0.00	3
	Median	45.06	30.04	0.00	6.00	18.94	2.50	0.00	5.00
	Standard Devi	17.17	10.71	0.00	3.24	9.40	5.67	0.00	1.10

STATISTICS PER TEACHER

TS1	TS1P1	91.25	8.75	19.20	187.50	772.50	930.00	0.00	1030.00	445.00	107.50	0.00
	TS1P2	94.76	5.24	19.53	184.29	518.57	270.00	0.00	1759.29	683.57	180.00	0.00
	TS1P3	92.42	7.58	23.02	156.36	827.27	183.64	0.00	1149.09	272.73	894.55	0.00
	TS1P4	94.92	5.08	11.09	324.55	867.27	1921.36	0.00	152.73	159.55	316.36	0.00
	TS1P5	96.31	3.69	15.08	238.72	970.21	1448.94	0.00	232.34	480.00	335.74	0.00
	Median	94.76	5.24	19.20	187.50	827.27	930.00	0.00	1030.00	445.00	316.36	0.00
	Standard Devi	2.05	2.05	4.59	66.42	168.68	748.76	0.00	673.66	201.57	309.90	0.00
TS2	TS2P1	94.30	5.70	12.88	279.47	942.63	1490.53	298.42	0.00	348.95	314.21	0.00
	TS2P2	68.93	31.07	24.39	147.60	583.20	1212.00	0.00	0.00	474.00	212.40	0.00
	TS2P3	78.45	21.55	16.94	212.54	662.03	1348.47	0.00	7.12	512.54	293.90	0.00
	TS2P4	69.68	30.32	28.03	128.42	677.89	1518.95	0.00	13.68	143.16	154.74	0.00
	TS2P5	73.77	26.23	19.29	186.67	1006.67	1228.89	0.00	27.78	277.78	114.44	0.00
	Median	73.77	26.23	19.29	186.67	677.89	1348.47	0.00	7.12	348.95	212.40	0.00
	Standard Devi	10.37	10.37	6.00	59.39	187.58	142.77	133.46	11.59	149.82	86.28	0.00
TS3	TS3P1	82.31	17.69	20.85	172.65	612.24	1955.51	142.04	0.00	72.24	181.22	0.00
	TS3P2	71.94	28.06	23.14	155.56	926.67	606.67	928.89	0.00	4.44	113.33	0.00
	TS3P3	68.16	31.84	17.89	201.18	718.24	1200.88	299.12	2.65	82.94	150.00	0.00
	TS3P4	64.57	35.43	25.31	142.22	888.89	1193.33	0.00	8.89	133.33	100.00	0.00
	TS3P5	74.13	25.87	30.73	117.14	330.00	1134.29	1020.00	0.00	27.14	157.14	0.00
	TS3P6	76.47	23.53	24.57	146.54	1025.77	212.31	1208.08	0.00	79.62	227.31	0.00
	Median	73.04	26.96	23.85	151.05	803.56	1163.81	614.00	0.00	75.93	153.57	0.00
	Standard Devi	6.26	6.26	4.36	28.66	254.14	594.75	512.75	3.57	45.48	46.27	0.00
TS4	TS4P1	88.64	11.36	17.49	182.41	813.81	511.14	0.00	1012.25	226.50	627.39	0.00
	TS4P2	82.57	17.43	11.49	258.78	1140.46	473.05	0.00	799.78	296.66	34.08	0.00
	TS4P3	59.43	40.57	12.06	177.37	516.79	529.18	0.00	817.82	58.13	80.18	0.00
	TS4P4	73.25	26.75	11.86	222.34	933.83	402.90	0.00	507.13	689.53	166.37	0.00
	Median	77.91	22.09	11.96	202.37	873.82	492.09	0.00	808.80	261.58	123.27	0.00
	Standard Devi	12.72	12.72	2.86	38.11	260.59	55.91	0.00	208.29	267.33	272.50	0.00
TS5	TS5P1	77.32	22.68	22.31	124.76	1023.06	1404.16	0.00	68.05	197.35	90.74	0.00
	TS5P2	97.12	2.88	61.72	56.64	1730.77	1699.30	0.00	0.00	66.08	0.00	0.00
	TS5P3	74.66	25.34	17.36	154.83	823.14	1518.19	0.00	41.21	216.09	89.11	0.00
	TS5P4	82.55	17.45	28.26	105.15	1174.13	1459.53	0.00	130.18	192.77	15.02	0.00
	TS5P5	84.17	15.83	45.91	66.00	846.00	2139.00	0.00	45.00	0.00	0.00	0.00
	Median	82.55	17.45	28.26	105.15	1023.06	1518.19	0.00	45.00	192.77	15.02	0.00
	Standard Devi	8.70	8.70	18.38	40.84	370.33	298.10	0.00	47.75	95.88	46.92	0.00

Appendix D3. Observation data Motor Learning group

STATISTICS PER TEACHER

TML1	TML1P1	76.00	56.00	0.00	36.00	22.00	20.00	0.00	5
	TML1P2	89.73	100.71	0.00	38.45	40.28	29.30	3.66	6
	TML1P3	117.55	104.08	0.00	12.24	100.41	25.71	0.00	5
	TML1P4	102.22	123.33	0.00	6.67	128.89	46.67	0.00	5
	TML1P5	118.46	127.69	0.00	56.92	133.85	32.31	0.00	5
	Median	102.22	104.08	0.00	36.00	100.41	29.30	0.00	5.00
	Standard Devi	18.25	28.45	0.00	20.57	51.28	9.98	1.64	0.45
TML2	TML2P1	97.41	30.16	0.00	75.77	15.15	73.60	0.00	5
	TML2P2	54.34	12.40	0.00	78.11	13.58	64.53	0.00	5
	TML2P3	88.34	41.84	0.00	22.09	51.53	55.21	0.00	5
	TML2P4	78.98	33.55	0.00	66.24	20.38	68.79	0.00	5
	TML2P5	115.32	84.19	0.00	61.82	42.80	39.23	0.00	5
	Median	88.34	33.55	0.00	66.24	20.38	64.53	0.00	5.00
	Standard Devi	22.60	26.72	0.00	22.66	17.33	13.57	0.00	0.00
TML3	TML3P1	85.00	5.00	0.00	85.00	30.00	52.50	0.00	5
`	TML3P2	127.50	100.00	45.00	20.00	102.50	40.00	0.00	6
	TML3P3	96.00	54.00	24.00	81.00	81.00	21.00	0.00	6
	TML3P4	120.00	86.40	0.00	50.40	76.80	33.60	0.00	5
	TML3P5	114.19	96.77	19.35	25.16	65.81	42.58	11.61	7
	Median	114.19	86.40	19.35	50.40	76.80	40.00	0.00	6.00
	Standard Devi	17.57	39.86	18.80	30.32	26.62	11.66	5.19	0.84

STATISTICS PER TEACHER

TML1	TML1P1	76.50	23.50	17.14	210.00	436.00	1222.00	0.00	818.00	100.00	178.00	0.00
	TML1P2	73.55	26.45	11.92	302.14	479.76	1276.30	0.00	399.19	159.31	307.63	25.64
	TML1P3	81.43	18.57	10.00	360.00	701.63	1251.43	0.00	157.96	461.63	358.78	0.00
	TML1P4	74.60	25.40	8.83	407.78	711.11	978.89	0.00	51.11	555.56	388.89	0.00
	TML1P5	78.68	21.32	7.67	469.23	566.15	872.31	0.00	520.00	692.31	181.54	0.00
	Median	76.50	23.50	10.00	360.00	566.15	1222.00	0.00	399.19	461.63	307.63	0.00
	Standard Devi	3.17	3.17	3.72	99.43	125.45	182.60	0.00	303.67	255.53	98.59	11.46
TML2	TML2P1	85.03	14.97	11.16	292.10	664.58	549.85	0.00	946.00	80.10	820.44	0.00
	TML2P2	74.15	25.85	14.93	222.96	526.42	217.36	0.00	1168.30	33.96	723.40	0.00
	TML2P3	80.37	19.63	12.38	259.02	603.68	1039.88	0.00	165.64	318.40	765.64	0.00
	TML2P4	77.28	22.72	11.49	267.94	721.02	710.83	0.00	657.32	71.34	621.66	0.00
	TML2P5	86.00	14.00	10.06	343.37	631.31	1034.35	0.00	681.24	401.85	347.16	0.00
	Median	80.37	19.63	11.49	267.94	631.31	710.83	0.00	681.24	80.10	723.40	0.00
	Standard Devi	5.03	5.03	1.83	44.60	72.29	347.26	0.00	375.74	166.94	187.19	0.00
TML3	TML3P1	80.00	20.00	13.98	257.50	525.00	55.00	0.00	1767.50	172.50	360.00	0.00
`	TML3P2	84.38	15.63	8.28	435.00	637.50	930.00	512.50	142.50	517.50	297.50	0.00
	TML3P3	85.67	14.33	10.08	357.00	576.00	804.00	123.00	948.00	450.00	183.00	0.00
	TML3P4	83.53	16.47	9.80	367.20	585.60	1032.00	0.00	693.60	400.80	295.20	0.00
	TML3P5	88.66	11.34	9.54	375.48	605.81	1316.13	251.61	112.26	330.97	396.77	135.48
	Median	84.38	15.63	9.80	367.20	585.60	930.00	123.00	693.60	400.80	297.50	0.00
	Standard Devi	3.16	3.16	2.15	64.07	41.43	471.27	214.30	680.44	131.85	81.35	60.59

Appendix D4. Observation data Rolland group

STATISTICS PER TEACHER

TR1	TR1P1	94.05	124.86	0.00	144.32	51.89	50.27	0.00	5
	TR1P2	116.09	96.52	9.13	14.35	36.52	11.74	10.43	7
	TR1P3	79.53	85.12	0.00	20.93	51.63	8.37	0.00	5
	TR1P4	140.00	86.00	66.00	0.00	53.00	28.00	3.00	6
	TR1P5	128.00	127.00	0.00	16.00	26.00	31.00	0.00	5
	Median	116.09	96.52	0.00	16.00	51.63	28.00	0.00	5.00
	Standard Devi	24.66	20.62	28.77	59.32	12.05	16.82	4.52	0.89
TR2	TR2P1	79.29	41.79	0.00	11.79	47.14	13.93	0.00	5
	TR2P2	115.56	76.67	0.00	8.89	102.22	22.22	0.00	5
	Median	97.42	59.23	0.00	10.34	74.68	18.08	0.00	5.00
	Standard Devi	25.65	24.66	0.00	2.05	38.95	5.86	0.00	0.00
TR3	TR3P1	149.81	137.52	4.47	10.06	11.18	17.89	0.00	6
	TR3P2	115.91	97.91	0.00	39.39	18.01	16.88	1.13	6
	TR3P3	96.51	130.29	0.00	33.78	28.95	19.30	0.00	5
	TR3P4	175.85	199.03	0.00	34.78	56.04	5.80	0.00	5
	Median	132.86	133.91	0.00	34.28	23.48	17.38	0.00	5.50
	Standard Devi	35.27	42.24	2.24	13.19	19.74	6.19	0.56	0.58

STATISTICS PER TEACHER

TR1	TR1P1	87.48	12.52	7.74	465.41	601.62	574.05	0.00	1316.76	256.22	400.54	0.00
	TR1P2	71.67	28.33	12.21	294.78	966.52	1023.91	110.87	174.78	116.09	109.57	78.26
	TR1P3	91.01	8.99	14.66	245.58	1120.47	1204.19	0.00	429.77	400.47	121.40	0.00
	TR1P4	78.61	21.39	9.57	376.00	1024.00	753.00	528.00	0.00	203.00	240.00	82.00
	TR1P5	83.61	16.39	10.98	328.00	739.00	1623.00	0.00	140.00	166.00	342.00	0.00
	Median	83.61	16.39	10.98	328.00	966.52	1023.91	0.00	174.78	203.00	240.00	0.00
	Standard Devi	7.60	7.60	2.62	83.83	213.83	408.19	228.83	528.89	109.01	129.64	43.91
TR2	TR2P1	84.76	15.24	18.56	193.93	978.21	1314.64	0.00	106.07	486.43	166.07	0.00
	TR2P2	85.25	14.75	11.06	325.56	991.11	976.67	0.00	41.11	856.67	203.33	0.00
	Median	85.00	15.00	14.81	259.74	984.66	1145.65	0.00	73.59	671.55	184.70	0.00
	Standard Devi	0.34	0.34	5.31	93.07	9.12	238.99	0.00	45.93	261.80	26.35	0.00
TR3	TR3P1	88.51	11.49	10.88	330.93	1332.67	1526.09	103.98	27.95	69.32	126.34	0.00
	TR3P2	86.31	13.69	12.45	289.22	967.80	1243.51	0.00	301.59	203.69	386.00	4.50
	TR3P3	85.46	14.54	11.66	308.85	637.00	1993.03	0.00	185.79	86.86	173.73	0.00
	TR3P4	93.18	6.82	7.64	471.50	1041.55	1857.00	0.00	173.91	241.55	40.58	0.00
	Median	87.41	12.59	11.27	319.89	1004.67	1691.55	0.00	179.85	145.28	150.03	0.00
	Standard Devi	3.46	3.46	2.11	82.69	285.83	337.15	51.99	112.16	85.16	146.95	2.25

Appendix D5. Observation data Traditional Method group

STATISTICS PER TEACHER

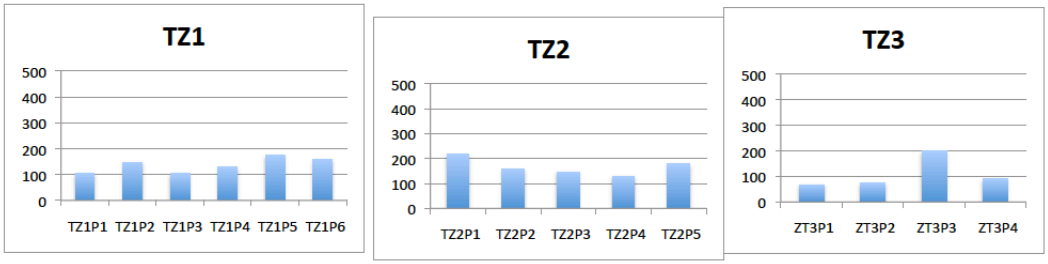
TTM1	TTM1P1	107.50	7.50	70.00	17.50	17.50	10.00	0.00	6
	TTM1P2	69.68	11.61	60.00	1.94	17.42	7.74	0.00	6
	TTM1P3	64.80	0.00	57.60	2.40	7.20	14.40	0.00	5
	TTM1P4	62.31	55.38	0.00	0.00	27.69	4.62	0.00	4
	TTM1P5	66.92	0.00	53.08	11.54	2.31	6.92	0.00	5
	Median	66.92	7.50	57.60	2.40	17.42	7.74	0.00	5.00
	Standard Devi	18.79	23.18	27.61	7.52	9.92	3.71	0.00	0.84
TTM2	TTM2P1	67.35	39.80	0.00	3.06	9.18	39.80	0.00	5
	TTM2P2	100.05	72.45	0.00	8.62	15.52	13.80	0.00	5
	TTM2P3	149.47	87.54	0.00	8.54	23.49	17.08	0.00	5
	TTM2P4	87.10	58.06	0.00	19.35	15.48	9.68	0.00	5
	Median	93.57	65.26	0.00	8.58	15.50	15.44	0.00	5.00
	Standard Devi	35.00	20.38	0.00	6.82	5.86	13.48	0.00	0.00
TTM3	TTM3P1	141.18	112.11	0.00	14.53	74.74	16.61	0.00	5
	TTM3P2	110.86	125.89	0.00	5.64	62.00	54.49	0.00	5
	TTM3P3	126.58	113.02	9.04	3.01	54.25	30.14	0.00	6
	TTM3P4	89.90	131.71	0.00	25.09	68.99	37.63	0.00	5
	TTM3P5	79.54	53.03	0.00	26.51	26.51	16.20	0.00	5
	Median	110.86	113.02	0.00	14.53	62.00	30.14	0.00	5.00
	Standard Devi	25.39	31.39	4.04	10.79	18.84	15.99	0.00	0.45
TTM4	TTM4P1	92.46	184.91	0.00	2.89	187.80	5.78	0.00	5
	TTM4P2	117.99	66.19	0.00	103.60	34.53	31.65	0.00	5
	TTM4P3	105.68	68.18	3.41	92.05	13.64	0.00	0.00	5
	TTM4P4	117.11	76.38	0.00	71.29	134.94	5.09	0.00	5
	Median	111.40	72.28	0.00	81.67	84.73	5.44	0.00	5.00
	Standard Devi	11.96	57.50	1.70	45.07	82.59	14.25	0.00	0.00
TTM5	TTM5P1	101.48	36.24	0.00	86.98	55.57	26.58	0.00	5
	TTM5P2	120.90	64.96	0.00	64.96	81.20	19.85	0.00	5
	TTM5P3	128.71	83.17	0.00	59.41	95.05	7.92	0.00	5
	TTM5P4	143.39	52.14	2.17	99.94	52.14	8.69	0.00	6
	TTM5P5	135.96	65.02	0.00	118.23	50.25	17.73	2.96	6
	Median	128.71	64.96	0.00	86.98	55.57	17.73	0.00	5.00
	Standard Devi	16.10	17.41	0.97	24.41	20.13	7.88	1.32	0.55

STATISTICS PER TEACHER

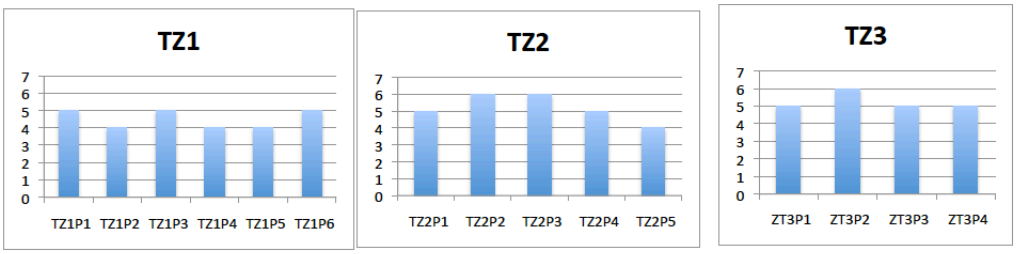
TTM1	TTM1P1	75.97	24.03	15.65	230.00	930.00	175.00	1265.00	180.00	77.50	107.50	0.00
	TTM1P2	65.48	34.52	21.38	168.39	791.61	48.39	1304.52	5.81	137.42	69.68	0.00
	TTM1P3	66.07	33.93	24.59	146.40	559.20	0.00	1526.40	4.80	124.80	163.20	0.00
	TTM1P4	67.37	32.63	24.00	150.00	597.69	1271.54	0.00	0.00	489.23	66.92	0.00
	TTM1P5	58.53	41.47	25.57	140.77	657.69	0.00	1227.69	150.00	4.62	66.92	0.00
	Median	66.07	33.93	24.00	150.00	657.69	48.39	1265.00	5.81	124.80	69.68	0.00
	Standard Devi	6.23	6.23	4.00	36.65	152.57	548.36	606.41	89.10	187.66	41.91	0.00
TTM2	TTM2P1	90.90	9.10	22.62	159.18	1845.92	707.14	0.00	9.18	125.51	584.69	0.00
	TTM2P2	86.44	13.56	17.11	210.45	1386.87	1226.45	0.00	108.67	222.52	167.32	0.00
	TTM2P3	91.81	8.19	12.58	286.12	2004.98	1039.86	0.00	19.22	160.14	81.14	0.00
	TTM2P4	87.74	12.26	18.98	189.68	1656.77	1004.52	0.00	185.81	243.87	67.74	0.00
	Median	89.32	10.68	18.04	200.06	1751.35	1022.19	0.00	63.94	191.33	124.23	0.00
	Standard Devi	2.55	2.55	4.17	54.11	265.83	214.89	0.00	83.12	54.75	243.67	0.00
TTM3	TTM3P1	62.86	37.14	10.02	359.17	844.98	973.70	0.00	51.90	244.98	147.40	0.00
	TTM3P2	71.50	28.50	10.03	358.87	567.43	1204.38	0.00	45.09	259.29	497.91	0.00
	TTM3P3	71.91	28.09	10.71	336.04	804.69	1172.37	55.76	22.60	259.19	274.26	0.00
	TTM3P4	71.20	28.80	10.19	353.31	522.65	1062.02	0.00	213.24	261.32	503.83	0.00
	TTM3P5	62.52	37.48	17.84	201.80	1171.03	662.85	0.00	164.98	147.30	104.58	0.00
	Median	71.20	28.80	10.19	353.31	804.69	1062.02	0.00	51.90	259.19	274.26	0.00
	Standard Devi	4.85	4.85	3.41	67.76	259.39	217.12	24.93	84.21	49.14	188.88	0.00
TTM4	TTM4P1	83.55	16.45	7.60	473.84	413.16	1360.83	0.00	208.03	887.00	138.68	0.00
	TTM4P2	88.97	11.03	10.17	353.96	506.47	359.71	0.00	2054.68	138.13	143.88	0.00
	TTM4P3	81.16	18.84	12.72	282.95	477.27	1050.00	6.82	1189.77	197.73	0.00	0.00
	TTM4P4	90.74	9.26	8.89	404.81	420.08	738.33	0.00	1155.87	875.81	76.38	0.00
	Median	86.26	13.74	9.53	379.38	448.68	894.17	0.00	1172.82	536.77	107.53	0.00
	Standard Devi	4.50	4.50	2.19	80.65	45.14	428.50	3.41	754.40	412.67	67.23	0.00
TTM5	TTM5P1	92.55	7.45	11.73	306.85	867.38	157.05	0.00	1623.62	408.32	275.44	0.00
	TTM5P2	85.41	14.59	10.23	351.88	1001.50	667.67	0.00	557.59	685.71	162.41	0.00
	TTM5P3	92.46	7.54	9.62	374.26	1265.35	532.67	0.00	562.38	885.15	83.17	0.00
	TTM5P4	83.71	16.29	10.04	358.48	1173.20	312.85	69.52	1029.81	360.65	67.35	0.00
	TTM5P5	81.69	18.31	9.23	390.15	1173.40	375.37	0.00	928.08	283.74	168.47	11.82
	Median	85.41	14.59	10.04	358.48	1173.20	375.37	0.00	928.08	408.32	162.41	0.00
	Standard Devi	5.05	5.05	0.96	31.38	159.55	197.52	31.09	437.15	252.17	82.94	5.29

Appendix E1. Graphics Zweig group

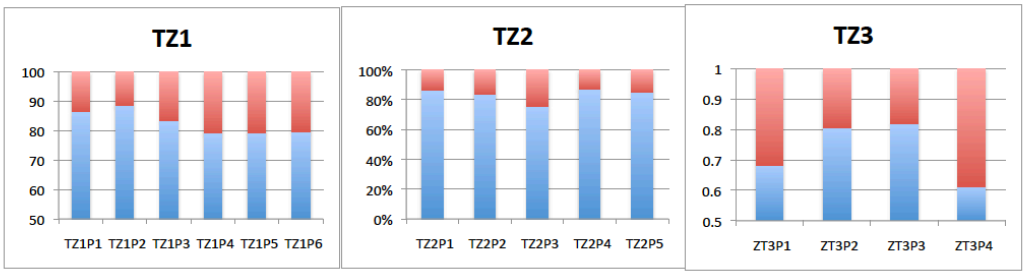
Tasks per hour



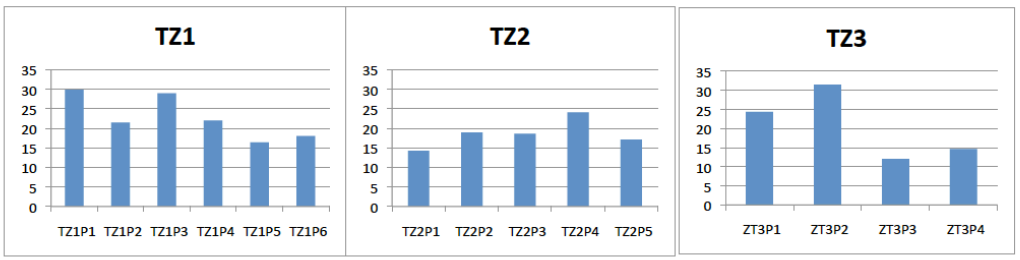
Types of practice

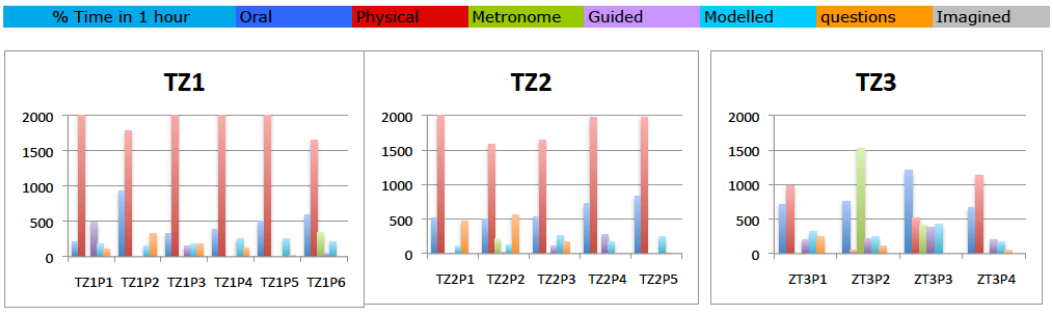


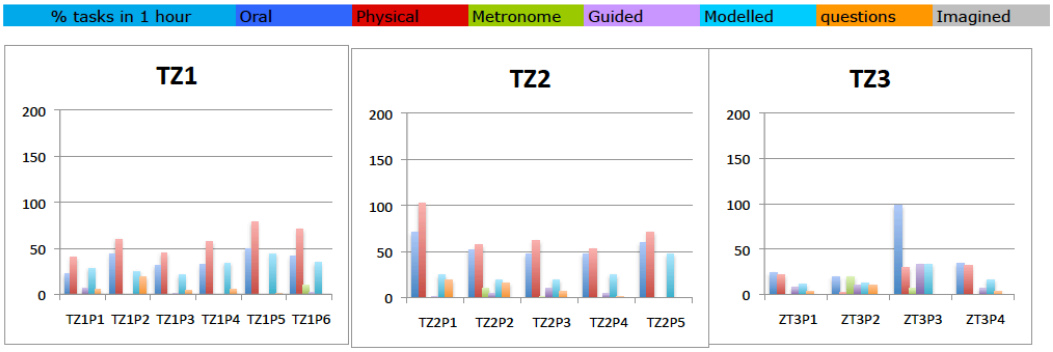
On-task behaviour Off-task behaviour



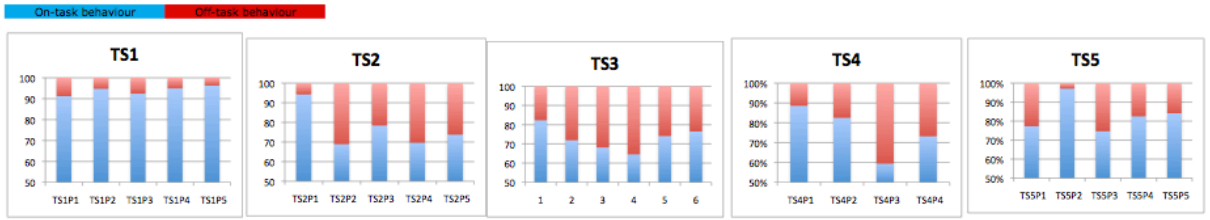
Seconds per task

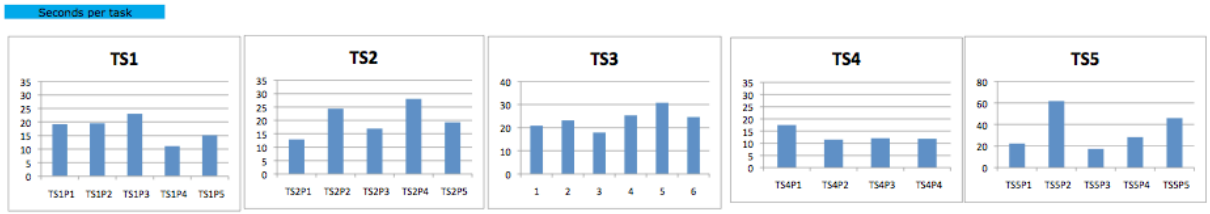


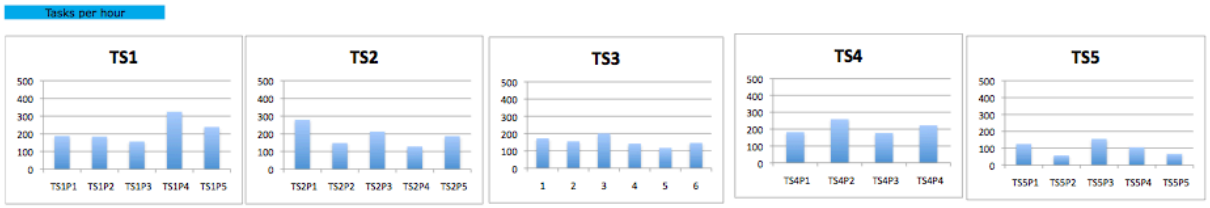

% Time in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TZ1
2000
1500
1000
500
0
TZ1P1 TZ1P2 TZ1P3 TZ1P4 TZ1P5 TZ1P6
TZ2
2000
1500
1000
500
0
TZ2P1 TZ2P2 TZ2P3 TZ2P4 TZ2P5
TZ3
2000
1500
1000
500
0
ZT3P1 ZT3P2 ZT3P3 ZT3P4

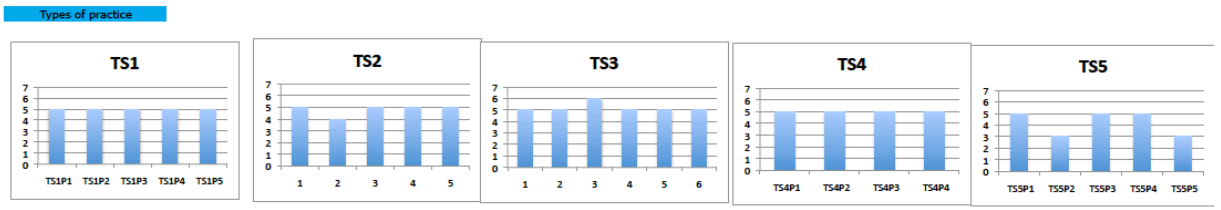

% tasks in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TZ1
200
150
100
50
0
TZ1P1 TZ1P2 TZ1P3 TZ1P4 TZ1P5 TZ1P6
TZ2
200
150
100
50
0
TZ2P1 TZ2P2 TZ2P3 TZ2P4 TZ2P5
TZ3
200
150
100
50
0
ZT3P1 ZT3P2 ZT3P3 ZT3P4

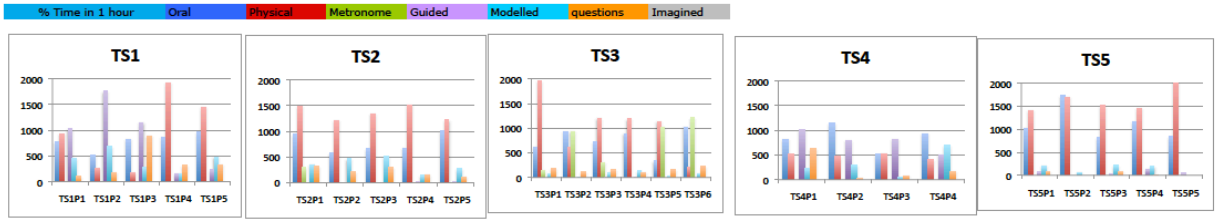
Appendix E2. Graphics Suzuki group

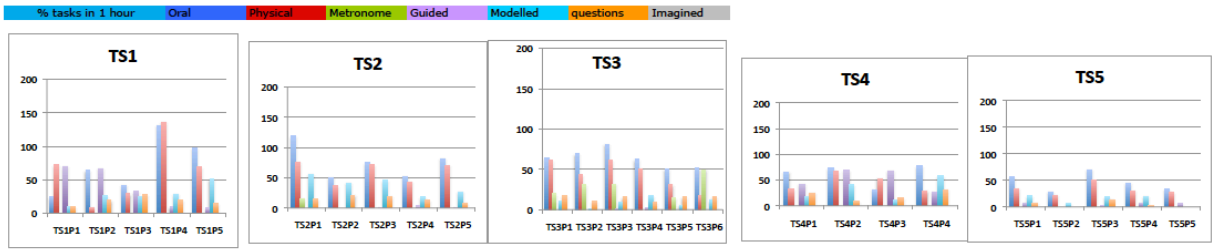






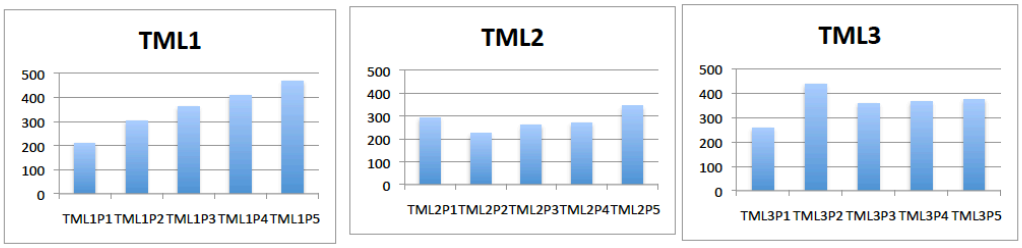




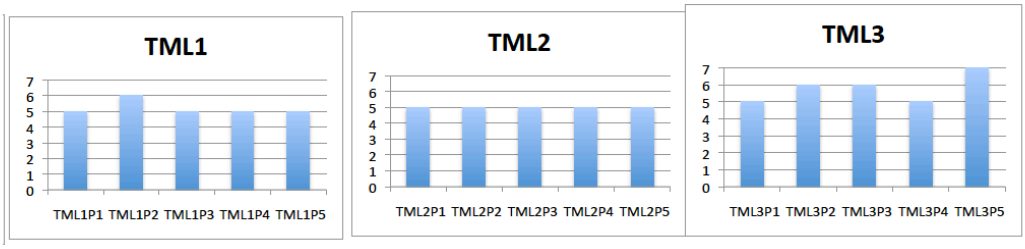


Appendix E3. Graphics Motor Learning group

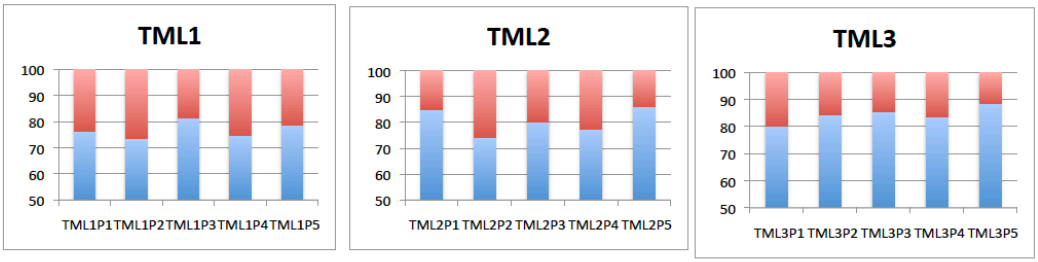
Tasks per hour



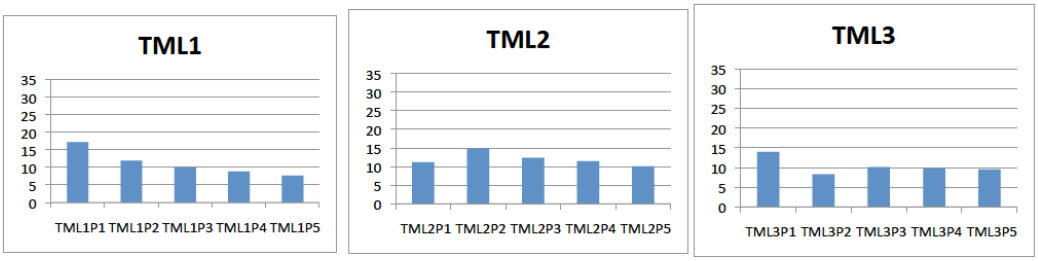
Types of practice

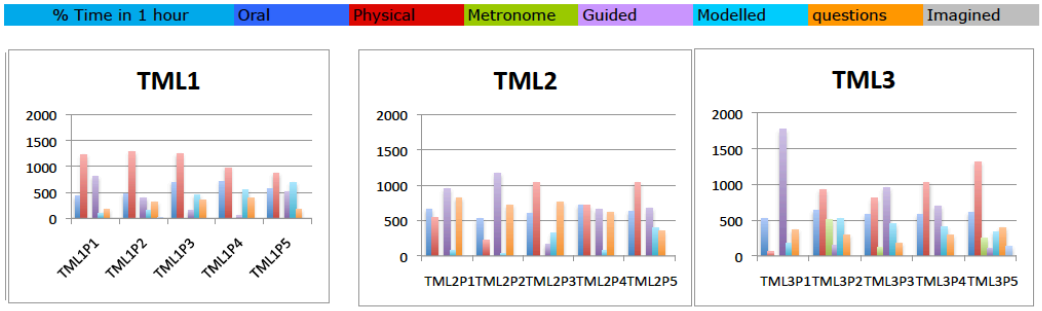


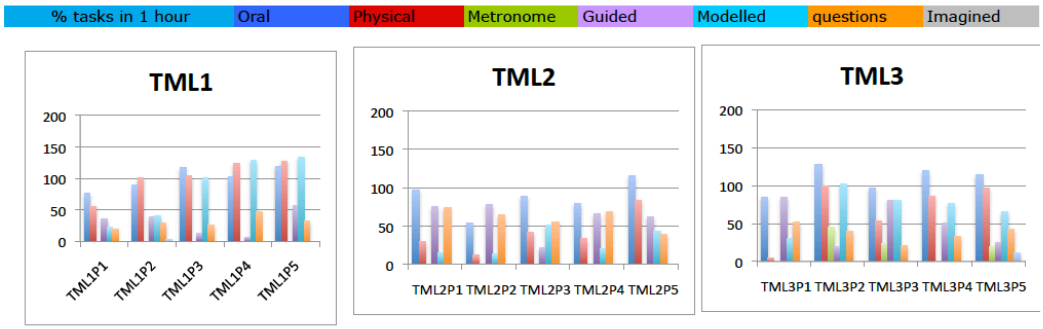
On-task behaviour | Off-task behaviour



Seconds per task

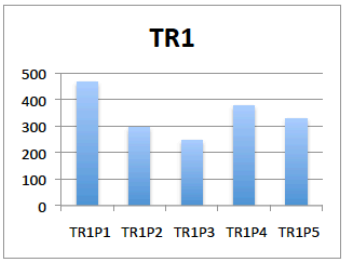


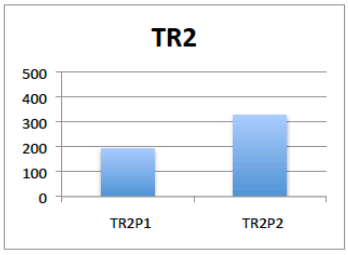

% Time in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TML1
2000
1500
1000
500
0
TML1P1
TML1P2
TML1P3
TML1P4
TML1P5
TML2
TML2P1TML2P2TML2P3TML2P4TML2P5
TML3
TML3P1TML3P2TML3P3TML3P4TML3P5

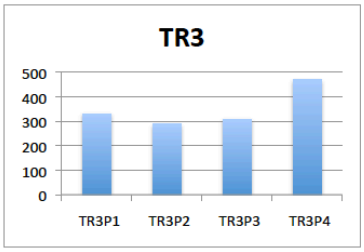

% tasks in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TML1
200
150
100
50
0
TML1P1
TML1P2
TML1P3
TML1P4
TML1P5
TML2
TML2P1 TML2P2 TML2P3 TML2P4 TML2P5
TML3
TML3P1 TML3P2 TML3P3 TML3P4 TML3P5

Appendix E4. Graphics Rolland group

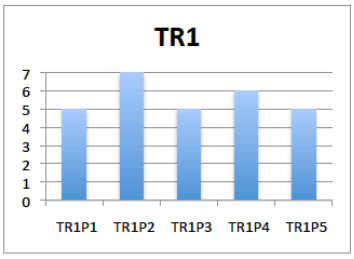
Values per hour

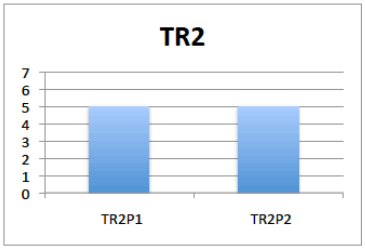


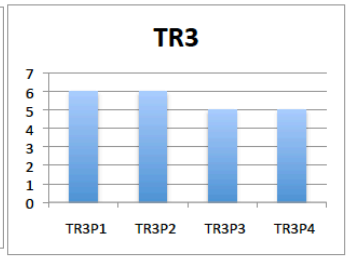




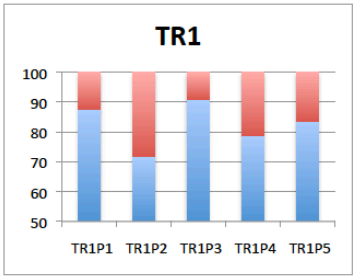
Types of practice

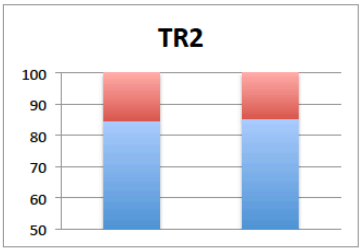


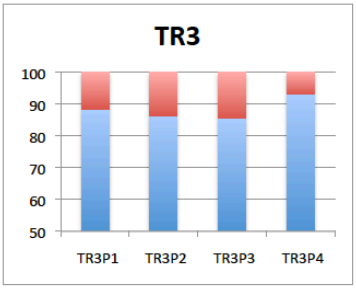




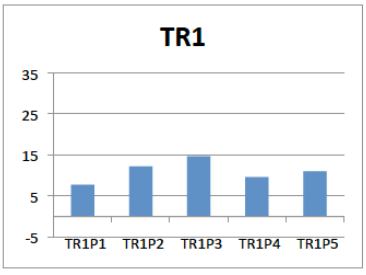
On-task behaviour | Off-task behaviour

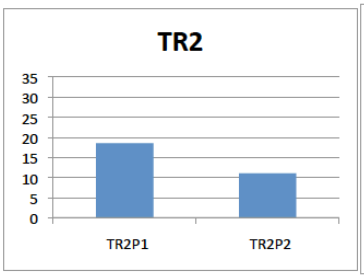


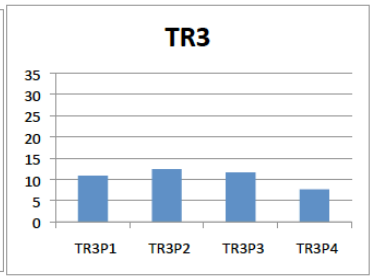




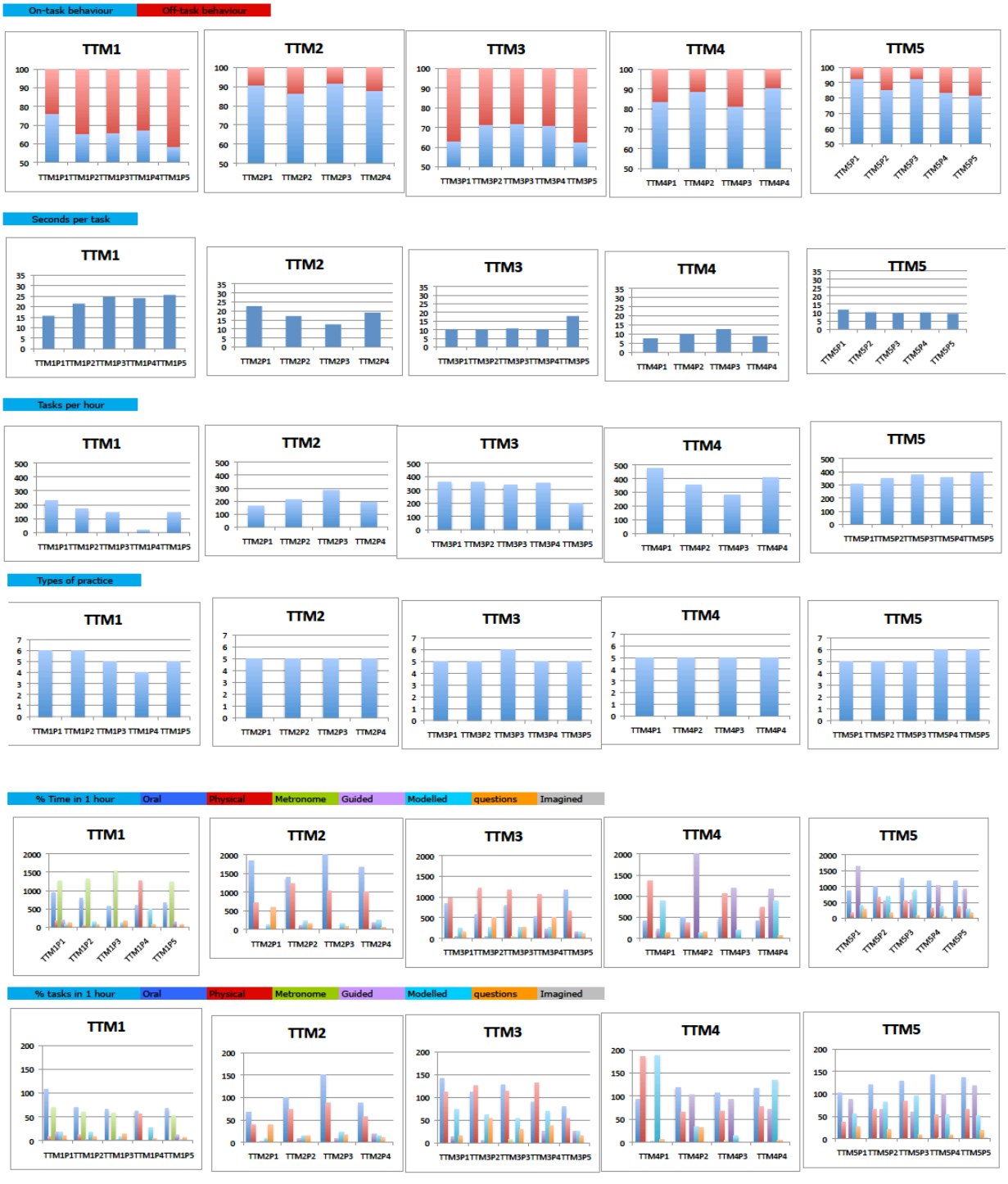
Seconds per task

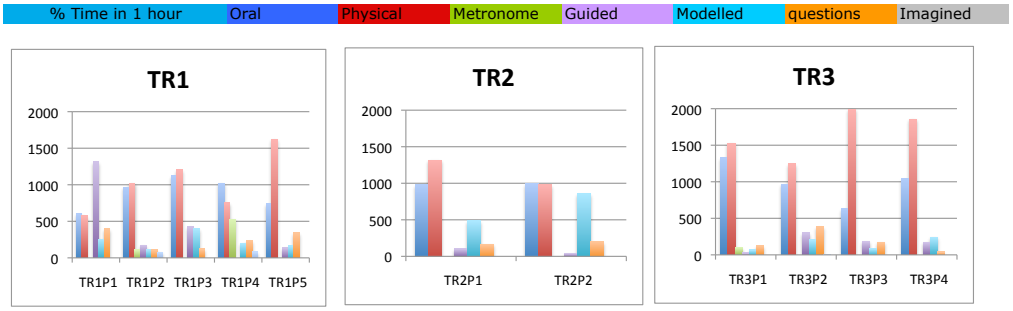


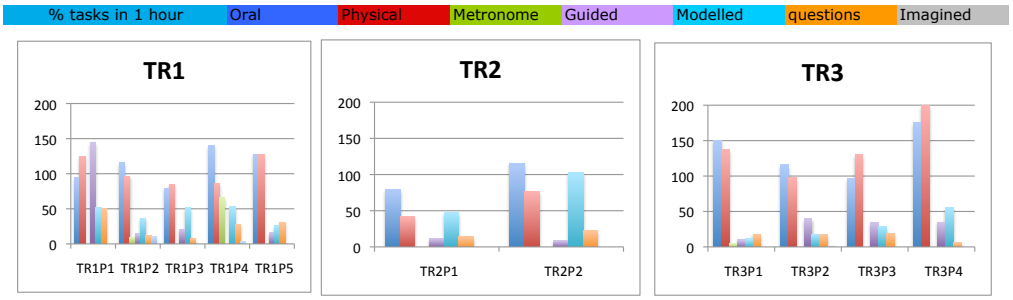




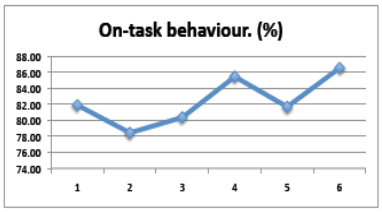
Appendix E5. Graphics Traditional Method group

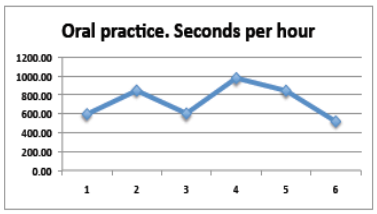


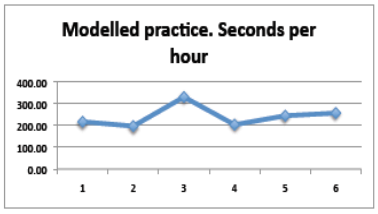

% Time in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TR1
2000
1500
1000
500
0
TR1P1 TR1P2 TR1P3 TR1P4 TR1P5
TR2
2000
1500
1000
500
0
TR2P1 TR2P2
TR3
2000
1500
1000
500
0
TR3P1 TR3P2 TR3P3 TR3P4

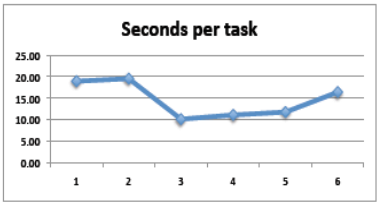

% tasks in 1 hour
Oral
Physical
Metronome
Guided
Modelled
questions
Imagined
TR1
200
150
100
50
0
TR1P1 TR1P2 TR1P3 TR1P4 TR1P5
TR2
200
150
100
50
0
TR2P1 TR2P2
TR3
200
150
100
50
0
TR3P1 TR3P2 TR3P3 TR3P4

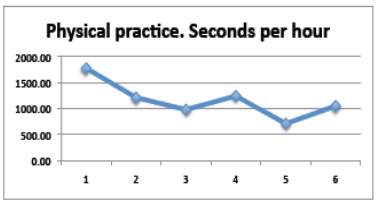
Appendix E6. Graphics comparison of pedagogies

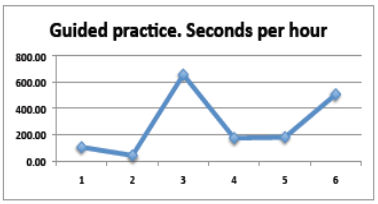


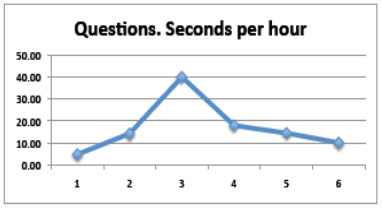




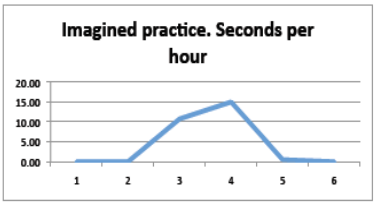








Group of teach	Number
Zweig	1
Suzuki	2
ML	3
Rolland	4
Traditional	5
Top	6



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